DOKUMENTATION
DER
WEINBAUFORSCHUNG

A. ALLGEMEINES

BERNUTH, J.: **Der Thüringer Weinbau. Ein Beitrag über Aufschwung und Niedergang des Thüringer Weinbaus** · Viticulture in Thuringia. A contribution to upward and downward movement of the Thuringian viticulture
Schriften zur Weingeschichte (65), hrsg. v. d. Gesellschaft f. Geschichte des Weines, Wiesbaden, 40 S. (1983)

Grapevines are grown in Thuringia for more than 1000 years, possibly since the 6th century A. D. In the late middle ages, the cultivated area in Thuringia was probably about 4000 ha. Temporarily, wine was a typical national beverage, but the quality might not have been comparable with that of today. However, there is historical evidence for good qualities for some years. The causes for the decline in the Thuringian viticulture are presented as follows: Liquidation of the monasteries, changes in the agrarian structure, expansion of forestry, competition with other beverages etc. The rest was due to phylloxera and fungus diseases at the end of the last century. A certain upward tendency is now to be observed — the climatic conditions are satisfactory — although not "on the basis of quality wine growing". *H. Berndt* (Geilweilerhof)

CADENAS MARIN, A., MUGICA GRIJALBA, J. M.: **Economy of viticulture and enology in Spain (Comparative analysis with regard to viticulture of the EEC)** · Weinwirtschaft in Spanien (Vergleich mit der Weinwirtschaft in der EG) (span.)
Publ. Min. Agricult. Pesca Aliment., Inst. Nacl. Invest. Agrar. Madrid, 100 S. (1983)

Considering the integration of Spain into the EEC, the Spanish viticulture is described. In numerous tables commented numerical data are given on structure and size of viticultural farms, cultivated areas, yields, cooperatives (1980: 855 with nearly 400,000 members), distribution of the cultivation to various areas, wine qualities produced, export etc. — Also the most important viticultural data of the EEC states and the wine trade relations with the EEC states are presented using numerical data. From these facts, the problems of the anticipated Spanish viticulture are derived and suggestions are made as to the Spanish wine policy, mainly to better the wine qualities. A program for the transitional period is required. *H. Berndt* (Geilweilerhof)

HOFFMANN, K. M.: **Der Wein und die Gesundheit des Menschen** · The wine and the human health
Bad. Winzer (4), 146—158 (1983)

There were several international conferences about wine as a medicament in the last years. 3 important symposia in the last year were held about the same subject in Germany in Bad Kreuznach, Würzburg and Berlin. A summary of these lectures, understandable not only for the very experts, makes available this special field between wine research and medicine. The historical aspects as well as the most modern results of medical research of the wine as a medicine are discussed. *H. Eschnauer* (Ingelheim)

B. MORPHOLOGIE

AHMEDULLAH, M.: **Pollen morphology of selected *Vitis* cultivars** · Morphologie der Pollen ausgewählter Rebsorten
J. Amer. Soc. Hort. Sci. **108**, 155—160 (1983)
Irrig. Agricult. Res. Ext. Center, Wash. State Univ., Prosser, Wash., USA

The investigation was undertaken to evaluate the surface morphology of pollen grains from 43 selected cvs. of *Vitis labruscana* and *V. vinifera* and to determine whether pollen morphology and surface topography can be used as parameters in cv. identification of grapes. Some morphological features (size, shape, furrows, exine) were studied at SEM and LM level. The majority of cvs. had 3-furrowed pollen, which appeared subspherical in polar view. Based on exine and furrow characteristics, size and polar axis/equatorial diameter (P/E) ratios, cvs. were divided into 3 groups: P r o l a t e containing the majority of cvs., with wide furrows and a P/E ratio ranging from 1.57 to 2.00; S u b p r o l a t e (5 cvs.) with narrow furrows and a P/E ratio > 2; A b n o r m a l (6 cvs.) with spher-

oidal pollen without furrows. Though there were significant differences in pollen size, the P/E ratio was constant within each cv., suggesting that P/E ratio can be used as an additional parameter for the identification of grape cvs. *P. Bonfante-Fasolo* (Turin)

BERNARD, A. C., MUR, G.: **Quelques aspects histologiques des néoformations tissulaires chez la vigne** · Some histological aspects of newly formed tissues in grapevines
Progr. Agric. Vitic. (Montpellier) **99** (17), 378—383 (1982)
Lab. Cytol. Vég., Univ. Sci. Tech., Montpellier, Frankreich

This concise paper reports the development of various newly formed tissues that can be found in grapevines: 1) callus resulting from the graft union entailing the formation of tissues which tally with the usual structure of the stem; 2) classical excrescences originating from serious winter injuries entailing cell proliferation where a definite structure is not identifiable; 3) excrescences-like developments which are not the result of climatic conditions and where formations similar to vascular bundles are to be found; 4) shoot callus obtained from *in vitro* culture where tissues do not present any definite organization. Nice pictures illustrate this paper. *C. Duménil* (Reims)

FREGONI, M.: **Mutations and malformations of grape organs** · Mutationen und Mißbildungen von Reborganen
Vignevini (Bologna) **10** (3), 27—30 (1983)
Catted. Viticolt., Univ. Catt. S. Cuore, Piacenza, Italien

Variations and anomalous formations can sometimes be observed in different grape organs. Chromatic variations in berries are the most well known and are caused by genetic mutations. The latter can cause a complete change of the cluster colour going from red to white. Other mutations are partial, giving rise to white and red clusters or berries. A less frequent variation consists in a variation of the berry shape, caused by genetic mutations or by some specific genes, mostly during the homozygote state. The "fasciated" gene gives rise to a loculus increase, while the "gq" gene produces an increase of partly distinct carpels. Other variations consist in "double clusters", "very branched clusters" and in anomalous shoots. In addition, albinism in leaves as well as hghly laciniate leaves can be caused by other genetic mutations. Lastly, polyploid — and in particular tetraploid — plants (as Sultanina, Regina, Moscato di Alessandria and so on) can show giant organs and anomalous pollen. *P. Bonfante-Fasolo* (Turin)

C. PHYSIOLOGIE

AFRIKYAN, A. B.: **Change of manganese content in the shoots and leaves of grape depending on regime and tier of mineral nutrition** · Veränderung des Mangangehaltes in Trieben und Blättern der Rebe in Abhängigkeit von der Blattposition und der Art der Mineralstoffernährung (russ. m. armen., engl. Zus.)
Biol. Zh. Armenii (Erevan) **35**, 971—974 (1982)
State Medical Inst. of Erevan, Dept. Bioorganic Biol. Chem., Erevan, Arm. SSR

In field and laboratory experiments with the grape cultivar Cachet, plants were fertilized with N, P, and K in the combinations NK, NP, PK, NPK (100 kg/ha) or not fertilized (control plants). At 5 periods during plant development, the Mn content (mg dry matter/kg) in leaves and shoots was studied. The lowest Mn content during the whole vegetation period was found in both leaves and shoots of plants fertilized with NPK, indicating that the simultaneous action of N, P and K stimulates assimilation of Mn by grapes. More Mn is found in the leaves than in the shoots. Maximum Mn content is found in the upper parts of the shoot during the whole growing season, in the leaves first (before flowering) at the fruiting nodus and later (at berry ripening) in the lower leaves, mainly in fertilized plants. *I. Tichá* (Prag)

ANDONOVA, T., LILOV, D., KOTSEVA, E.: **Identification of free cytokinins in grapevine inflorescences** · Bestimmung von freien Cytokininen in Rebinfloreszenzen (bulg. m. russ., engl. Zus.)
Fiziol. Rast. (Sofia) **8** (4), 23—28 (1982)
Inst. Fiziol. Rast. "Metodi Popov", Sofia, Bulgarien

There is some correlation between the speed of the formation of reproductive organs and the content of free and bound cytokinins. The purpose of these investigations was to identify — shortly before grapevine blooming — the free cytokinins and reciprocal binding of some phytohormones of cytokinin type. Glucoside form and free cytokinin bases were identified: zeatineriboside, dihydrozeatine, zeatine, o-hydroxybenzyladenine and isopentenyladenine. The results obtained showed a relatively small content of glucoside forms and a high content of free bases, which is characteristic for the phase of intensive grapevine growing. The formation of reproductive organs was not followed by qualitative changes, but by increased content of glucoside forms and free cytokinin bases.
M. Milosavljević (Belgrad)

ARUTYUNYAN, E. A., SKLYAROVA, I. A., POGOSYAN, K. S.: **Impedance of grapevine tissues and its frost resistance** · Impedanz und Frostresistenz von Rebgewebe (russ. m. armen., engl. Zus.)
Biol. Zh. Armenii (Erevan) **36**, 130—135 (1983)

The overall resistance of 1-year-old grapevine shoots to electricity was studied in plants from various ecotypes with different frost resistance (cvs. Amurskij, Artages, Burmunk, Karmrayut and Spitak Arakseni) and under the influence of low and lethal temperatures (−6 to −12.5 °C; −18 to −32 °C). A direct correlation between the impedance and the frost resistance was found: the higher the impedance, the higher the frost resistance. When lowering the temperature, a common tendency to a diminishing of the impedance was observed. *I. Tichá* (Prag)

BERAN, N.: **Die Bedeutung des Wassersättigungsdefizites der Atmosphäre für die Transpiration der Rebe (*Vitis vinifera*) unter besonderer Berücksichtigung der Blatttemperatur und der Lichtintensität** · The importance of the atmospheric difference in water vapour concentration on transpiration of grapevine (*Vitis vinifera*) with reference to leaf temperature and light intensity (m. engl. Zus.)
Wein-Wiss. **38**, 147—161 (1983)
LLFA f. Landwirtsch. Wein- Gartenbau, Neustadt/Weinstr.

Container-grown irrigated Riesling vines were used under open air conditions to study the effects of the water saturation deficit of the air (wsd) on transpiration under varying light and leaf temperature conditions. The data of similar wsd, leaf temperature and light intensity conditions during several diurnal cycles were collected and statistically analysed. Increases of the wsd led to an increase of transpiration up to a critical point and thereafter to a decline. Increases of the leaf temperature or the light intensity led to a general rise of transpiration, without changing on principal the type of optimum curve described above. *H. Düring* (Geilweilerhof)

BOSELLI, M., SCIENZA, A., DOROTEA, G., VOLPE, B.: **Prediction of stiellähme in grapes by analysis of leaf mineral levels** · Possibilité de prévision du dessèchement de la rafle par le contrôle de la nutrition minérale (ital. m. franz. Zus.)
Vignevini (Bologna) **10** (4), 35—38 (1983)
Catted. Viticolt., Univ. Catt. S. Cuore, Piacenza, Italien

The results presented by the Authors indicate that there exists a possibility of forecasting the incidence and severity of stiellähme in grapes. Occurrence of the disease was confirmed to be correlated to a disturbed nutritional equilibrium as well as to meteorological conditions. K/Mg and K/Mg+Ca ratios in leaves at the time of flowering and rainfall in August, independently allow an estimation of the prospective damage. However, multiple computing of nutritional and climatic factors is expected to yield more reliable data, thus permitting to cut prophylactic countermeasures under low risk conditions. *H. P. Ruffner* (Zürich)

BRUSKY-ODNEAL, M.: **Winter bud injury of grapevines 1981—1982** · Schäden an Winterknospen von Reben 1981—1982
Fruit Varieties J. **37**, 45—51 (1983)
State Fruit Exp. Sta., S. W. Missouri State Univ., Mountain Grove, Mo., USA

Cvs of N. American hybrid wine grapes, table grapes and some seedling selections were assessed for cold tolerance at Southwest Missouri State University (alt.: 442 m). Genotypes were grouped (A

to E) according to survival of primary, secondary and tertiary latent buds after exposure in the vineyard to unusually low winter temperatures (−15 °C for 1 d; −25 °C for 2 d; −27 °C for 2 d). Concord Seedless, GR7, Ives and Steuben were the most cold-hardy of the 81 cvs. and selections.
M. G. Mullins (Sydney)

CAWTHON, D. L., MORRIS, J. R.: **Relationship of seed number and hormone content to fruit ripening in Concord grapes** · Beziehung zwischen Samenzahl, Hormongehalt und Beerenreife bei Concordreben
Arkansas Farm Res. (Fayetteville) **31** (6), 12 (1982)

To study the causes of uneven fruit ripening in Concord grapes several parameters of berry ripening including hormonal changes were analysed at weekly intervals during ripening. Seed number had little influence on the endogenous levels of auxin (IAA) and abscisic acid (ABA). Levels of IAA (µg/g fr.w.) decreased until ca. 60 d after peak bloom and remained low thereafter. ABA started to increase ca. 65 d after bloom, i. e. about the time when the soluble solids increased, to reach 1 µg · g^{-1} fr.w. 100 d after peak bloom. During the ripening period no decline of ABA was recorded. Berry ripening did not begin until after IAA had declined. *H. Düring* (Geilweilerhof)

COURNIER, S., GROUZIS, J.-P., RAMBIER, M., PARIS-PIREYRE, N.: **Relations entre la fixation de Ca^{2+}, l'empilement des thylakoides et le caractère calcicole ou calcifuge chez deux espèces de vigne** · Relations between calcium fixation, stacking of thylakoids and calcicole or calcifuge distinction of two species of vine (m. engl. Zus.)
Physiol. Vég. (Paris) **20**, 423—432 (1982)
Lab. Physiol Vég., Univ. Sci. Tech. Languedoc, Montpellier, Frankreich

Ca effect on the stacking of thylakoids has been examined in *Vitis vinifera* (calcicole sp.) and in *V. riparia* (calcifuge sp.). The results show that the thylakoids of the calcifuge sp. fix more Ca than those of the calcicole sp.: It ist suggested that Ca is fixed through the carboxyl groups of the membrane proteins. Nevertheless, the thylakoid stacking is more sensitive to Ca concentration in *V. vinifera* (i. e. the calcicole sp.): this observation suggests a possible relationship between the sensitivity towards Ca and the electrical characteristics of the thylakoid surface. *G. Lombardo* (Milano)

JOHNSON, J. O., WEAVER, R. J., PAIGE, D. F.: **Differences in the mobilization of assimilates of *Vitis vinifera* L. grapevines as influenced by an increased source strength** · Unterschiede in der Beweglichkeit von Assimilaten bei *Vitis-vinifera*-Reben in Abhängigkeit von einem gesteigerten CO_2-Angebot
Amer. J. Enol. Viticult. **33**, 207—213 (1982)
Dept. Viticult. Enol., Univ. California, Davis, Calif., USA

Source strength in Cardinal vines was increased through the application of elevated levels of carbon dioxide (1000 ml l^{-1} air) between the time of 85—100 % bloom and fruit maturation. This resulted in higher final dry weight of many of the vegetative parts and greater sugar levels in leaves of vines carrying 1 or 2 bunches of fruit. Carbon dioxide enrichment enhanced fruit yield on vines carrying 2 bunches of fruit and significantly increased the rate of shoot growth. However, the treatment had no significant influence on total leaf area, on root to shoot ratios or on the percentage distribution of total plant dry weight among plant parts. *J. Downton* (Adelaide)

KINKLADZE, D. CH., KETSKHOVELI, E. N., SARADZHEVA, M. A., DZHAPARIDZE, I. G., GIGINEISHVILI, M. N.: **The state of chlorophyll lipoprotein complex in vine shoots** · Der Chlorophyll-Lipoprotein-Komplex in Rebtrieben (russ. m. grus., engl. Zus.)
Soobshch. Akad. Nauk Gruzinsk. SSR (Tbilisi) **108**, 605—608 (1982)
Inst. Bot. Acad. Sci. Georg. SSR, Tbilisi, UdSSR

The content of tightly bound (aggregated) chlorophyll in bark and wood of grapevine cvs. Rkatsiteli, Chimuri, Goruli Mtsvane and Saperavi was determined as a measure of the status of the chlorophyll lipoprotein complex. During the year, usually 3 maxima in the content of aggregated chlorophyll in the bark are found (for the cv. Rkatsiteli e.g. in July, October and February), in the wood the 3rd maximum is found later (for Rkatsiteli in April). The content of aggregated chlorophyll is

highest in April and July in both bark and wood; in August, a disaggregation of chlorophyll starts as a characteristic of the rest period. In the more frost-resistant cvs. Rkatsiteli and Chimuri, the content of aggregated chlorophyll is higher than in the other 2 less frost-resistant cvs. *I. Tichá* (Prag)

KOBLET, W.: **Einfluß unterschiedlicher Minustemperaturen und Einwirkungszeiten auf den Frostschaden von Rebenstecklingen** · Effects of different minus temperatures and different times of exposure on frost damage of grape cuttings
Schweiz. Z. Obst- Weinbau **119**, 252—256 (1983)
Eidgenöss. FA f. Obst- Wein- Gartenbau, Wädenswil, Schweiz

In order to examine the effects of different minus temperatures on late frost damage, in spring 2-bud cuttings (Riesling × Silvaner) were kept in the glasshouse until the 3-leaf-stade and were exposed thereafter to −2 °C to −6 °C using refrigerators. The time of exposure varied from 1 to 6 h. At lower temperatures (−4 to −6 °C), the number of young sprouts killed by frost depended mainly on the degree of temperature rather than the duration of exposure, the latter becoming more important at higher temperatures. *H. Düring* (Geilweilerhof)

MISIK, S., EIFERT, J.: **Prüfung der Zusammenhänge zwischen Frostfestigkeit und Bindungsgrad des Wassers der Weinrebe mittels Mikrowellen-Meßmethode** · Microwave measuring method for studying relations between the frost resistance of grapevine and the degree of its bound water (ungar. m. russ., dt., engl. Zus.)
Szölötermesztés Borászat (Kecskemét) **5** (1), 15—18 (1983)

Dielectric parameters at 6.3 GHz of the xylem sections of various rootstocks were determined by a microwave method. Frost resistance (bud damage after freezing at −16 °C) of the corresponding canes was also assessed. A correlation between water content or water holding capacity and frost damage of the canes was not always present, however, dielectric constant (ε') of the xylem specimens from more resistant canes was consistently lower. Consequently, these canes contained a higher amount of bound water. Nevertheless, in the range of 30—50 % water content, there was a varietal dependence of ε' on the same moisture level. Frost resistance of the canes can, therefore, be characterized simultaneously by the water content and ε'. In October and November ε' decreases considerably, accompanied by a moderate loss of water in the canes. Besides by genetic and environmental factors, seasonal changes of total and bound water content of the canes are also influenced by an endogenous rhythm. *F. Sági* (Szeged)

MORRIS, J. R., CAWTHON, D. L.: **Effects of ethephon on maturation and quality of Concord Grapes** · Wirkung von Ethephon auf Reife und Qualität von Concordtrauben
Arkansas Farm Res. (Fayetteville) **31** (2), 6 (1982)

21-year-old, own-rooted, *Vitis labrusca* cv. Concord grapevines were treated with 2-chloroethyl phosphonic acid (ethephon) and maturation parameters were examined. All vines received the following treatments: 0, 200, 400 and 800 ppm ethephon applied when 50 % of the berries exhibited some color, which was 20 d before harvest. Part of the vines at 10 d before harvest were treated again with the above concentrations. — None of the ethephon treatments had any effects on the following maturation parameters: (1) soluble solids; (2) tartaric acid; (3) pH; and (4) color. The 800 ppm treament applied once and the 400 ppm treatment applied twice reduced the amount of force required to remove the berries. *J. O. Johnson* (Davis)

MULLINS, C. A., PETREY, K., DEYTON, D. E., COFFEY, D. L.: **Effects of fluctuating winter temperature stress on growth and productivity of grape *(Vitis)* species** · Die Wirkungen wechselnder Streßtemperaturen im Winter auf das Wachstum und den Ertrag von Rebarten *(Vitis)*
Fruit Varieties J. **37**, 42—45 (1983)

To determine the effects of severely fluctuating winter temperatures on vegetative and reproductive development in an experiment station near Crossville (Tennessee, USA) several American type (AT) and French hybrid type (FHT) cvs. were tested. The 10 AT cvs. averaged higher values of buds/plant left on the primary canes after pruning, higher bud break, higher shoot growth and a

higher rate of survival. Moreover the yield and the soluble solids were superior to the FHT cvs. Due to the close correlation between June shoot growth and yield (r = 0.94) shoot growth in June appeared to be an excellent indicator of vine condition and yield potential.

H. Düring (Geilweilerhof)

NOVÁK, F. J., JUVOVÁ, Z.: **Clonal propagation of grapevine through *in vitro* axillary bud culture** · Klonenzucht bei Reben durch *in-vitro*-Kultur von Axillarknospen

Scientia Hort. (Amsterdam) **18**, 231—240 (1983)

Czech. Acad. Sci., Inst. Exp. Bot., Olomouc, CSSR

Development of micropropagation procedures for 7 *Vitis vinifera* cvs. and cv. Craciunel *(V. berlandieri x V. riparia)* is described. Continuous proliferation of axillary shoots was achieved by culture and subculture of apical explants (500 µm, dome plus 1—2 leaf primordia) on MS-medium supplemented with 6-benzylaminopurine (BAP, 10 µM). Cultures were grown with 16 h photoperiods (3600 lx). [Culture temperature was not reported. — Ref.]. For induction of adventitious roots, shoots were transferred to half-strength MS-medium containing γ-indolebutyric acid (10 µM). Use of aseptic methods for virus eradication and for long-term storage of grape germplasm is discussed.

M. G. Mullins (Sydney)

SCIENZA, A., BOSELLI, M., ZAMBONI, M., VOLPE, B.: **Doses et époques des traitements avec gibbérelline sur la productivité du cépage Picolit à fleur femelle** · Einfluß von Konzentration und Zeiten der Behandlung mit Gibberellin auf den Ertrag bei der weiblichen Rebsorte Picolit · Influence of concentration and time of treatment with gibberellic acid on the yield of the female cv. Picolit

Progr. Agric. Vitic. (Montpellier) **100** (3), 90—95 (1983)

Catted. Viticolt., Univ. Catt., Piacenza, Italien

Die Behandlung der Blüten von männlich sterilen Rebsorten mit Gibberellinsäure kann Ansatz, Beerenwachstum und Ertrag stark beeinflussen. Die Wirksamkeit hängt im wesentlichen von Behandlungszeitpunkt und verwendeter Wirkstoff-Konzentration ab. So wirken frühe Behandlungen (zur Zeit der Vollblüte) bei der Sorte "Picolit" auf Ansatz und Zuckergehalt, spätere Behandlungen fördern das Wachstum der Beeren. Als Ergebnis der Untersuchungen werden 2 Spritzungen vorgeschlagen, und zwar 4 und 15 d nach beendeter Blüte jeweils mit Konzentrationen von 75—100 ppm.

H. Jansen (Hannover)

SHULMAN, Y., NIR, G., FANBERSTEIN, L., LAVEE, S.: **The effect of cyanamide on the release from dormancy of grapevine buds** · Die Wirkung von Cyanamid auf den Austrieb von Rebknospen nach der Winterruhe

Scientia Hort. (Amsterdam) **19**, 97—104 (1983)

Inst. Hort., Agricult. Res. Organ., Volcani Center, Bet Dagan, Israel

Solutions of cyanamide (0.25—1.25 M) caused a rapid bud burst on spur-pruned Perlette and Dan Ben Hanna, respectively. H_2CN_2 was more effective than $CaCN_2$. Lower concentrations of cyanamide were necessary to break dormancy of cuttings during the deep rest period in November. Other treatments such as wounding, hot water, DNOC and thiourea also induced bud opening, but to a lesser degree. — All treatments, except thiourea, enhanced respiration of cuttings significantly.

G. Alleweldt (Hohenheim und Geilweilerhof)

SMART, R. E., COOMBE, B. G.: **Water relations of grapevines** · Der Wasserhaushalt der Reben

In: KOZLOWSKI, T. T. (Ed.): Water deficits and plant growth, Vol. VII. Additional woody crop plants. Acad. Press, London, 137—196 (1983)

Dept. Viticult., Roseworth Agricult. Coll., Roseworthy, S. A., Australien

Experiments with grapevine irrigation extend back to 2900 B. C. This already indicates that "Water Relations of Grapevines" forms an essential part in KOZLOWSKI's highly respected series Water Deficits and Plant Growth, Vol. VII of which addresses the problems of water relations of important woody crop plants. Ecological, physiological and especially viticultural aspects of water relations are summarized in a comprehensive and critical manner including the following chapters: the

hydrological cycle, water use and transpiration, absorption of water, diurnal and seasonal patterns of water relations, effects of water deficits on grapevines, drought tolerance, responses of vines in the field to water supply. Author's longstanding and profound experience with basic as well as applied problems of grapevine water relations and irrigation enabled a critical review of scientific research, avoiding emotional arguments, e.g. regarding the effects of irrigation on wine quality. This excellent chapter fills a gap for all who are interested in water and grapevines: researchers, teachers and advanced students. (202 references.) *H. Düring* (Geilweilerhof)

SZYJEWICZ, E., KLIEWER, W. M.: **Influence of temperature and ethephon concentration on growth and composition of Cabernet Sauvignon grapevines** · Einfluß von Temperatur und Ethephonkonzentration auf Wachstum und chemische Zusammensetzung von Cabernet-Sauvignon-Reben

J. Plant Growth Regulation **1**, 295—304 (1982)

Dept. Viticult. Enol., Univ. California, Davis, Calif., USA

At 25/15 °C or 35/25 °C (day/night), grapevines were acclimated in a phytotron until full bloom. 3 d after a treatment of ethephon (sprays: 250, 500, 750 ppm) the vines were held at 25/15 °C for 15 weeks. Growth was suppressed by a greater range of ethephon concentrations at the cool temperature, but effects were shorter-lived than at the high temperature. Vigor was generally reduced most effectively by 500 ppm. High ethephon concentrations and high temperature caused a lowering of water use. 500 or 750 ppm ethephon led to an increase of the Ca concentration but to a reduction of the K concentration especially of the basal leaf blades and petioles. Differences of the Mg concentrations of the basal leaf blades were primarily dependent on the temperature regimes.

H. Düring (Geilweilerhof)

TAKAGI, N., INOUE, J.: **Seasonal changes in berry growth and photosynthetic rate of leaves of Muscat of Alexandria grapes** · Jahreszeitliche Veränderungen des Beerenwachstums und der Photosyntheserate von Blättern der Rebsorte Muskat von Alexandria (japan. m. engl. Zus.)

J. Japan. Soc. Hort. Sci. **51**, 286—292 (1982)

Agricult. Exp. Sta., Sanyo, Okayama, Japan

Cluster growth, dry weight increase, fruit respiration and leaf photosynthesis and their interrelationships were examined in order to produce higher fruit quality. Volume increase of cluster showed a double sigmoid growth curve. The daily increase rate was greatest in stage I, followed by stage III. Whereas the dry weight increase of cluster did not exhibit the same growth curve as that of volume. The daily increase rate was greatest in stage III. In ripened cluster, 72 % of the dry matter were accumulated in this stage. Daily respiration rate of cluster was greatest in the transition from stage I to II and in the beginning of stage III. Daily photosynthesis rate in leaves was greatest at blooming and then decreased gradually, though its rate decreased markedly during the rainy season (late June). Therefore, it is supposed that the cluster development in stage III is not supported by photosynthates produced during this stage, but by those produced and stored before stage III. Overcropping in stage III results in poor growth, delaying ripening and poor quality of fruits. *R. Isoda* (Hiroshima)

YAMAKAWA, Y.: **Characteristics of white wine grape cultivars Riesling, Chardonnay, Koshu and Riesling Lion** · Charakterisierung der Weißweinsorten Riesling, Chardonnay, Koshu und Riesling Lion (japan. m. engl. Zus.)

J. Japan. Soc. Hort. Sci. **51**, 475—484 (1983)

Inst. Enol. Viticult. Yamanashi Univ., Hokushin, Kofu, Japan

Seasonal changes in the varietal characteristics together with the viticultural features of 4 grafted (on 5C) grapevine cvs. (trained on overhead trellis) were examined for 3 vintages (1979—1981) in the experimental vineyard. Riesling was often subjected to white rot and bitter rot owing to the compact cluster and the presence of cracked berries, while Chardonnay was seldom subjected to diseases and was a good producer. Koshu and Riesling Lion (Koshu-sanzyaku × Riesling) are easy to cultivate though they are sometimes suffering from downy mildew. General analysis, estimation of 5 organic acids contents, and also sensory evaluations of the 12 wines made from 300 kg of grapes each were carried out after storage in bottels. The wines of Chardonnay were more fruity and harmonious with regard to body than the other wines. *I. Ohara* (Yamanashi)

YAMAKAWA, Y., MORIYA, M., ANAMIZU, H.: **Effect of ripening stage of Sylvaner on wine quality** · Einfluß des Reifegrades von Silvaner auf die Weinqualität (japan. m. engl. Zus.)
J. Inst. Enol. Viticult. Yamanashi Univ. **17**, 29—35 (1982)

The aim of this study was to introduce the German wine grape cv. Sylvaner into Japan. Therefore, its harvesting time was tested with special regard to change in chemical composition during ripening: pH, °Brix, titratable acid, tartaric acid, malic acid, glucose and fructose. In Japan, Sylvaner showed early maturity (early September, overripened in late September). Total acid was highest in late July and then decreased rapidly. In late September, its value showed 0.6 g/100 ml. The °Brix and the ratio sugars/acids increased with advancing fruit maturity. The best wine quality — having moderate acidity, fruity aroma and harmonious body — was obtained when harvesting in mid-September. Harvest in early September resulted in a wine with poor aroma and body and with unripe flavour. The wine made from overripe berries (harvest in late September) was very inferior in aroma, though it had moderate flavour and taste. *R. Isoda* (Hiroshima)

ZHAKOTE, A. G.: **Effect of shading and direct solar radiation on rates of photosynthesis in grape leaves** · Wirkung von Beschattung und direkter Sonneneinstrahlung auf die Photosynthese in Rebblättern (russ. m. engl. Zus.)
Fiziol. Rast. (Moskau) **30**, 315—323 (1983)
Inst. Fiziol. Biokhim. Rast., Akad. Nauk Mold. SSR, Kishinev, UdSSR

In the cvs. Rannij Magaracha, Merlot, Pinot Franc and Moldova, representing early, middle and late ripening groups of grapevine, leaf photosynthesis was studied under conditions simulating shading in natural stands. Leaves shaded by 1 layer of other leaves showed a 25—60 % decrease in net photosynthetic rate measured gasometrically. Shading with 2—4 layers of leaves did not further affect CO_2 assimilation. Illumination with 10 % of direct solar radiation of the shaded leaf enhanced net photosynthetic rate by 75—99 %; maximum net photosynthetic rate was reached at irradiation of 50—70 % of the leaf blade surface. Photosynthetic activity of the grapevine leaf is not only determined by its own light regime but also by the irradiation of the shoot and the whole plant. Grapevines possess an essential adaptability to radiation. *I. Tichá* (Prag)

D. BIOCHEMIE

AUGUSTYN, O. P. H., RAPP, A.: **Aroma components of *Vitis vinifera* L. cv. Chenin blanc grapes and their changes during maturation** · Aromakomponenten und ihre Veränderungen während der Beerenreife bei der *Vitis-vinifera*-Sorte Chenin blanc
S. Afr. J. Enol. Viticult. (Stellenbosch) **3**, 47—51 (1982)
Oenol. Vitic. Res. Inst. Stellenbosch, RSA

Samples of Chenin blanc were harvested weekly from 3 different sites over an 11-week period, and freon-extracted aroma components were subjected to gas chromatographic-mass spectrometric analysis. No terpenes or esters were detected in any of the samples. Most alcohols and aldehydes present displayed bimodal accumulation patterns, with maxima occurring shortly after véraison (around 13 °Brix) and at or before maturity. Authors concluded that neither stage of maturity nor locality had any effect on the concentration of aroma constituents in Chenin Blanc. A group of 2,4-alkadienals were identified, and it was suggested that these may be unique to this cv. However, the odor-active potential of the identified compounds was not investigated.
A. G. Reynolds (Summerland, B. C.)

AUGUSTYN, O. P. H., RAPP, A., WYK, C. J. VAN: **Some volatile aroma components of *Vitis vinifera* cv. Sauvignon blanc** · Flüchtige Aromakomponenten bei der *Vitis-vinifera*-Sorte Sauvignon blanc
S. Afr. J. Enol. Viticult. (Stellenbosch) **3**, 53—59 (1982)
Oenol. Vitic. Res. Inst. Stellenbosch, RSA

Freon extracts of Sauvignon blanc grapes harvested between 15 and 18 °B were subjected to gas chromatographic-mass spectrometric analysis coupled with GC-effluent sensory evaluation. A se-

ries of 3 pyrazine compounds were identified as being contributors to the strong grassy or pepper-like aroma characteristic of this cv. 5 terpenes and 6 alkadienals were also present, and Authors suggested that these also possessed possible odor-active properties. Other constituents of interest included methional, which contributed a potatolike aroma. It was concluded that further work was necessary to assess the real significance of those compounds identified.

A. G. Reynolds (Summerland, B. C.)

DAGNA, L., GASPARINI, G., ICARDI, M. L., SESIA, E.: **Study of some components of the unsaponifiable fraction in the skin of grapes** · Untersuchung einiger Komponenten der unverseifbaren Fraktion in der Beerenhaut

Amer. J. Enol. Viticult. **33**, 201—206 (1982)

Lab. Chim. Sanità Pubblica, Asti, Italien

The dried skins of 14 cvs. of grapes characteristic of the Piedmont region were Soxhlet-extracted with chloroform and the unsaponifiable fraction was separated by TLC. Quantitative GLC of the major fractions revealed the presence of β-sitosterol, campesterol and stigmasterol in the sterol fraction while erytrodiol was found in the triterpenoid fraction. In addition, in this fraction a compound was identified which was analogous to oleanoic acid with an aldehydic group in position 17. Differences in the amounts of compounds in the 14 cvs. were observed. *J. S. Hawker* (Adelaide)

GOTO, S., TANAKA, S., YOKOTSUKA, I.: **Chromatographic patterns of anthocyanins in Japanese hybrid red wine grapes** · Chromatogramm-Muster von Anthocyanen aus japanischen Rotweinsorten (japan. m. engl. Zus.)

J. Inst. Enol. Viticult. Yamanashi Univ. **17**, 21—27 (1982)

Inst. Enol. Viticult., Yamanashi Univ., Kofu, Japan

Using paper and thin-layer chromatography the anthocyanin characterization of red wine grapes newly bred in Japan and native Japanese red grapes was compared with that of *V. vinifera* red hybrids. The anthocyanins of Cabernet Lion, Suntory Noir and Hiro Hamburg (crossings of Koshu *(V. vinifera)* and European grapes) and the native Japanese cvs. Koshu, Zenkoji and Koshu-sanzyaku consisted exclusively of monoglucoside. Their pigment (anthocyanin) pattern was almost the same as that of the European grapes (Cabernet Sauvignon and Muscat Hamburg). In the Japanese hybrids (Black Queen, Muscat Bailey A, Bailey Alicante A, Cabernet Suntory and Fuefuki) and the Japanese wild grapes (*V. amurensis* and unknown species growing in Yamanashi and Tokachi districts), the anthocyanin contained both mono- and di-glucosides. Their pigment pattern was similar to that of the American grapes (Campbell Early, Mills and Concord). Among the Japanese wild grapes, *V. amurensis* was slightly different in pigment pattern from unknown species in Yamanashi and Tokachi. *R. Isoda* (Hiroshima)

ROBERTSON, G. L.: **Salicylic acid in grapes** · Salicylsäure in Trauben

Amer. J. Enol. Viticult. **34**, 42—43 (1983)

Dept. Food Technol., Massey Univ., Palmerston, Neuseeland

A spectrofluorimetric technique was used to demonstrate the presence of salicylic acid in Baco No. 1 and Riesling Sylvaner juices and wines. The juices obtained, after crushing and pressing either with or without heating, yielded values of 0.04 mg/kg. Pressed juices and wines contained 0.07—0.08 mg/kg. Fermentation did not seem to change the apparent concentrations.

C. W. Nagel (Pullman)

YOKOTSUKA, K., ITO, K., NOZAKI, K., KUSHIDA, T.: **Koshu grape pectins: Isolation, chemical composition and precipitation** · Die Pektine der Koshutrauben: Isolierung, chemische Zusammensetzung und Ausfällung

J. Inst. Enol. Viticult. Yamanashi Univ. **17**, 59—63 (1982)

Inst. Enol. Viticult., Yamanashi Univ., Kofu, Japan

Crude pectins extracted from grape pomace with hot water were purified via precipitation with ethanol and chromatography on DEAE-Sephadex A-50. Galacturonic acid content was 92 %, with rhamnose, galactose, arabinose and xylose as minor components; degree of esterification was 70 %. Precipitation was favoured by low temperatures, pH below 3.0, ethanol above 7 %, also by low concentrations of Cu^{++}, Ca^{++}, Fe^{++} and by the presence of must proteins. *T. C. Somers* (Adelaide)

E. WEINBAU

AHMEDULLAH, M., WOLFE, W. H.: **Control of sucker growth on *Vitis vinifera* L. cultivar Sauvignon blanc with naphthaleneacetic acid** · Wachstumsregulierung der Wassertriebe bei *Vitis vinifera* L., Sorte Sauvignon blanc, mit Naphthylessigsäure
Amer. J. Enol. Viticult. **33**, 198—200 (1982)
Irrig. Agricult. Res. Ext. Center, Washington State Univ., Prosser, Wash., USA

6-year-old vines treated with 0.25, 0.5 and 1.0 % NAA containing 0.1 % Tween-20 hardly produced any further suckers and exhibited a limited sucker growth in the year of treatment. In the following year, both sucker formation and sucker growth was repressed throughout, but in the 3rd year only the 0.5 % and 1.0 % NAA treatments had a significant after-effect. The treatments did not influence yield, cluster weight, berry weight, soluble solids, acidity, pH and pruning weight, respectively. Shoot, leaf or berry abnormalities were also absent. NAA sprays for sucker control on grapes are economical and seem to be of commercial interest. *F. Sági* (Szeged)

BALLINGER, W. E., MCCLURE, W. F.: **The effect of ripeness on storage quality of Carlos muscadine grapes** · Die Wirkung des Reifegrades auf die Lagerungsfähigkeit von Muscadineatrauben, cv. Carlos
Scientia Hort. (Amsterdam) **18**, 241—245 (1983)
Dept. Hort. Sci., North Carolina State Univ., Raleigh, N.C., USA

Muscadine grapes of Carlos cv., from North Carolina, were harvested in bunches; sound berries were cut from the bunches leaving 1—2 mm of stem attached. The berries were light sorted, on a Berrymatic, into 4 ripeness classes (TSS/acid ratio 14.2—18.7) and stored at 0 °C for 1—7 weeks. Every week a part of the fruit from all ripeness classes was removed from 0 °C to 20 °C for 1—6 d and examined for decay. It was found that, setting 10 % decay as a tolerable level, grapes of any of the 4 ripeness classes can be stored for 1 week at 0 °C followed by 24 h shelf life. However, only the least ripe grapes can be held for 3 d shelf life after 1 week of 0 °C storage. The least ripe grapes can also be stored for 5 weeks at 0 °C, with 1 d shelf life. It was shown that the length of the storage life of Carlos grapes depends on their degree of ripeness. *S. Guelfat-Reich* (Bet Dagan)

BECKER, N., MORGENSCHWEIS, G., LUFT, G.: **Standortfaktoren von zwölf Anlagen der Sorte Ruländer in Südbaden und ihr Einfluß auf vegetatives Wachstum und Entwicklung der Reben** · Ecological factors in twelve plantations of the "Pinot gris" variety in southern Baden (W. Germany) and their influence on vegetative growth and development of the vines (m. engl. franz. Zus.)
Wein-Wiss. **38**, 3—27; 75—107 (1983)
Staatl. Weinbauinst., Freiburg/Br.

Zur Untersuchung der Wirkung des Standortklimas und des Bodens auf Rebwachstum und Beerenreife wurden während 2 Vegetationsperioden (1972, 1973) die Temperatur 1 m üb. Gr. und 25 cm im Boden, die Verdunstung (CZERATZKI-Scheibe) und die Bodenfeuchte gemessen. Diese Daten wurden mit der Wüchsigkeit der Reben und der Dauer phänologischer Phasen verrechnet (multiple Regressionen mit der SPSS-Software). Die 12 Standorte weisen hinsichtlich Bodenbeschaffenheit und Mikroklima z. T. deutliche Unterschiede auf. — Die Wüchsigkeit ist sehr eng (negativ) mit der Verdunstung korreliert, weniger eng (positiv) mit dem nutzbaren Bodenwasser. Eine eindeutige Abhängigkeit von der Temperatursumme (°C · h, Basis 10 °C) ab Anfang März wird für den Austriebszeitpunkt nachgewiesen, wobei relativ niedrige Nachttemperaturen verzögernd wirken. Ebenso besteht ein hochsignifikanter Zusammenhang zwischen der Temperatursumme und dem Blütezeitpunkt. Für die Dauer der Phase Blüte-Weichwerden stellt sich heraus, daß sehr hohe Temperaturen nicht mehr phasenverkürzend wirken, sondern, vor allem bei gleichzeitigem starkem vegetativem Wachstum, die Phase verlängern; eine physiologische Erklärung für dieses statistische Resultat können Verff. nicht geben. [Vielleicht läßt sich eine Klärung über die temperaturabhängige Entwicklung der Samenanlagen und die Wuchsstoffproduktion finden. — Ref.].
M. Klenert (Geilweilerhof)

BOSELLI, M., SCIENZA, A.: **Effects of potassium fertilization on density and morphological characteristics of stomata in grapevines** · Wirkungen von Kaliumdüngung auf Dichte und morphologische Eigenschaften der Stomata von Reben (ital. m. engl. Zus.)

Vignevini (Bologna) **10** (1—2), 27—32 (1983)
Catted. Viticolt., Univ. Catt., Piacenza, Italien

Observations were made for 3 years on the response of grape rootstocks, own-rooted cvs. and grafted plants on the effect of K fertilization (0—2.96 g/pot), on number of stomata/leaf surface, interstomatal space, size of stomata and length of stomatal aperture. Leaf discs were observed by SEM. K fertilization affected some morphological characteristics of stomata and had little effect on stomatal frequency. Size of stomata and of aperture were decreased with higher K application in 3309 C. and Kober 5 BB; 420 A, Rupestris du Lot and 1103 Paulsen were influenced to a lesser degree. In own-rooted cvs. higher K applications showed a tendency to reduce number of stomata/ mm^2, while size of stomata increased with higher K, with certain cvs. Significance of results for drought tolerance is discussed. *P. Spiegel-Roy* (Bet Dagan)

CRUSIUS, P.: **Einfluß von Anschnitt, Boden und Jahreswitterung auf Menge und Güte des Ertrages bei den wichtigsten deutschen Rebsorten** · Influence of pruning, soil, and annual weather pattern on yield and quality of the production of the primary German grape varieties

Diss. Justus-Liebig-Univ., Gießen, 351 S. (1982)

This paper follows the dissertation of BÄDER, 1979 (see Vitis **19**, 171, 1980), for further 3 years (1979—1981). The 82 test-vineyards were spread over the German vine-growing regions with a great variety of microclimatic conditions: 158—246 kJ/cm^2/growing season. 12 grape cvs. were studied, but detailed statistical analyses were carried out only for the 3 most representative cvs.: Riesling (R), Müller-Thurgau (M), Sylvaner (S). A vast quantity of data from the 6-year-period of 1976—1981 was analyzed by computer with the BMDP-software. — The results reported largely confirm the conclusions of BÄDER. With deep soils, pruning practices (6, 9, 12, 15 buds/m^2) have a greater influence on the quality of the grapes than with flat soils (in terms of TSS). And for the higher quality S is more sensitive to pruning, followed by M and R. However, the annual weather pattern has the greatest influence on yield, grape and wine quality (as defined by extract) and acid content. — Many interfering variables giving statistically insignificant results prevented a correlation between the harvest data and the microclimatic values of the 82 vineyards. *M. Klenert* (Geilweilerhof)

DELOIRE, A., BERNARD, A. C.: **Etude histogénétique du greffage ligneux de combinaisons compatibles et incompatibles du genre *Vitis*** · Histogenetical study of woody grafts in compatible and incompatible grapevine combinations

Progr. Agric. Vitic. (Montpellier) **100** (1), 29—32 (1983)
Lab. Biol. Vég., Univ. Sci. Tech. Languedoc, Montpellier, Frankreich

A detailed histogenetical study (optical microscopy and SEM) of the junction part of whip graftings was made with compatible (Carigan/99 Richter) and incompatible (Jaoumet/57/ Richter) combinations. At the start of stratification of grafted grapevines, there were no significant variations between different combinations in the 1st stages of development (initiation of callus from parenchymatous part of the bark cambium and interfascicular rays occur in every case). 30 d after grafting vascular bonds normally appeared in compatible combinations but failed to do so in incompatible ones. Authors suggest observing the defects of newly formed cambium functioning in the graft section as a sign permitting to assess the compatibility between stock and scion genotype.
C. Duménil (Reims)

DUMARTIN, P.: **Essais d'éthéphon pour améliorer la qualité de la vendange rouge** · Ethephon trials in order to improve red vintage

Vignes et Vins (318), 7—10 (1983)
Inst. Tech. Vin, Bordeaux, Frankreich

Ethephon in different doses (76—1200 g a.i./ha) was tested in 17 vineyards of Bordeaux, Burgundy and Midi for 8 years. Results have not been uniform for all regions. In Bordeaux and Burgundy, when the applied doses were not over 500 g/ha, a reduction of acidity followed by an improvement of total polyphenols and taste of wines was observed. Under the warm conditions of Midi, however, a reduction of sugar content and yield was noticed without an improvement of the berry color.
B. Daris (Athen)

DURQUETY, P. M., NAUDE, E., BLANCHARD, P.: **La prévision de récolte sur Petit Manseng (*Vitis vinifera* L.) basée sur les courbes-niveaux de fertilité et les températures durant une seconde période critique différente de la période de formation des inflorescences** · Ertragsprognose für Petit Manseng (*Vitis vinifera* L.) aufgrund von Ertragskurven und Temperaturen während einer weiteren kritischen Periode vor der Infloreszenzbildung · Crop prognosis for the cv. Petit Manseng (*Vitis vinifera* L.) based on yield curves and temperatures during a further critical period before inflorescence formation
Progr. Agric. Vitic. (Montpellier) **100** (6), 159—171 (1983)

Es ist bekannt, daß die Ertragshöhe bei Petit Manseng sehr stark von den Temperaturbedingungen vom 6. bis 25. Juni des Vorjahres abhängt (Anlage der Infloreszenzen in den Winterknospen). In der vorliegenden Arbeit konnte an 7jährigem Beobachtungsmaterial ein statistischer Zusammenhang zwischen den Temperaturbedingungen von Austrieb bis Blüte und der Ertragshöhe im Folgejahr nachgewiesen werden, somit also eine zweite temperaturempfindliche Phase der Infloreszenzbildung, die vor dem eigentlichen Beginn dieses Vorgangs liegt: Die Summe der Tagesmitteltemperaturen über der Basis 10 °C vom 16. bis 25. Mai ist gesichert positiv korreliert mit dem Traubenertrag/Trieb im nächsten Jahr (Anschnitt 30 Augen/Stock). Verff. begründen den statistischen Zusammenhang ursächlich mit einer großen Temperatursensibilität des Meristemwachstums. Aus einem Diagramm ist schließlich für vorgegebene Temperaturbedingungen während der beiden kritischen Zeitabschnitte im Mai und Juni die Ertragsaussicht für das Folgejahr abzulesen.
M. Klenert (Geilweilerhof)

FORSLINE, P. L., MUSSELMAN, R. C., DEE, R. J., KENDER, W. J.: **Effects of acid rain on grapevines** · Wirkung des sauren Regens auf Reben
Amer. J. Enol. Viticult. **34**, 17—22 (1983)
Dept. Pomol. Viticult., N.Y. State Agricult. Exp. Sta., Cornell Univ., Geneva, N.Y., USA

This 1980 and 1981 research was conducted on mature vines in vineyards at Geneva (NY) and Fredonia (NY) on the American cvs. Concord, Catawba, Delaware and Ives; and on the French-American cvs. Aurora, De Chaunac, Maréchal Foch, Rougeon and Seyval. Rain had pH values of 3.3 and higher and caused no injuries to vines or grapes. Acid rain solutions used as whole-vine sprays of pH 2.5—5.5 were applied several times in pre-bloom-bloom and/or at weekly intervals to afford 1 h wetting/week. Leaf chlorosis, oxidant stipple, pollen germination, berry size, seed number and °Brix were measured in several experiments. — The variable results suggest that threshold pH levels for injuries to grapevines or grapes are below pH 3. Such injuries as reduction in pollen viability, acid-rain necrosis of the leaves, and reduction in °Brix appear to be variety-specific. In the absence of acid-rain lesions on leaves, and at pH >2.5, the relationship between acid rain, oxidant stipple and °Brix remains unclear. *N. Shaulis* (Geneva, N.Y.)

ISODA, R.: **Effect of prebloom severe pinching on berry setting and fruit development of vigorous Muscat of Alexandria grapes** · Wirkung von starkem Gipfeln vor der Blüte auf Beerenansatz und -wachstum bei der starkwüchsigen Rebsorte Muskat von Alexandria (m. japan. Zus.)
Bull. Hiroshima Agricult. Coll. **7**, 31—35 (1982)
Lab. Pomol., Agricult. Coll., Hiroshima, Japan

Vigorous Muscat of Alexandria vines grown in a greenhouse often tend to set straggly clusters. This experiment compared shoot pinching, pinching + CCC (0.2 %), pinching + CCC + BA (1 %) with no pinching. Treatments were applied 2 weeks before anthesis. The growth regulator treatments were effective in restricting shoot growth to ca. 50—60 cm, while the control grew to 380 cm. Due to resumption of shoot growth by the apical lateral shoot, pinching alone was only partially effective in reducing shoot length (130 cm). Berry number/cluster was increased by the growth regulator treatments (70 berries/cluster), pinching alone was partially effective (60 berries) and the control shoots set poorly (32 berries). Shoot growth and fruit set was observed the following year when no treatments were applied. Shoot lengths were similar to the 1st year response, and berry number/cluster was 58, 27 and 24 for pinching, pinching + CCC and pinching + CCC + BA compared to control vines with 39 berries. These carry-over effects to the 2nd year are noteworthy.
R. E. Smart (Ruakura)

KHRENOVSKOV, E. I., STRAKHOV, V. G.: **Effect of foliar nutrition with microelements and amber acid on respiration intensity, activity of oxidizing-reduction ferments and on productivity of grape (russ.)** · Einfluß der Blattdüngung mit Spurenelementen und Bernsteinsäure auf Respiration, Redoxfermente und Traubenertrag
Agrokhimiya (Moskau) (5), 86—91 (1983)

Nach Blattdüngung von Reben und Sorten Aligoté und Cabernet Sauvignon (CS) mit Mo- oder Cr-Salzen und Bernsteinsäure waren Oxidoreduktion, Wachstum und Ertrag erhöht. Die Traubenqualität wurde sowohl durch Cr- als auch durch Mo-Düngung verbessert. — Ein günstiger Einfluß von Spurenelementdüngung zeigte sich bei weißen wie bei roten Sorten, insbesondere durch Mo. So wurden bei CS die Blattfläche (um 1,5—2,8 %) und der Zuckergehalt der Beeren erhöht.
J. Blaha (Brno)

KOZMA, F., PINTÉR, F., TANCZER, T.: **Soil-climatologic methods in vine production area research** · Geländeklimatologische Methoden in der Rebstandortforschung (ungar.)
Szölötermesztés Borászat **4** (4), 16—18 (1982)

The paper deals with agroclimatologic investigation methods, which are important to viticulture. Recently started mapping of the soil temperature by means of earth satellite is reported.
Á. Hegedüs (Budapest)

KRIEL, G. J. LE R.: **Which clone should I plant?** Welchen Klon sollte man pflanzen? (afrik.)
Wynboer (Stellenbosch) (615), 51—56 (1983)

Comparative figures are given for the relative quantitative and qualitative performance of various clones of several wine grape cvs. in South Africa. In the case of material propagated under the "selected" scheme, i.e. which performed well and appeared relatively free from dangerous viruses, the vines were grafted onto Jacquez rootstock. Cvs. for which clones were compared are Cabernet Sauvignon, Chenin Blanc, Colombar, Cape Riesling, Clairette Blanche, Hanepoot (Muscat d'Alexandrie), White and Red Muscadel (Muscat de Frontignan), Cinsaut, Pinotage, Tinta Barocca and Shiraz. The most promising clones were also subjected to heat therapy to eliminate virus diseases and performance figures are given for these clones grafted onto either Jacquez or 101—14 rootstocks. General remarks are made on specific characteristics of some of the clones.
P. C. Smith † (Stellenbosch)

KULICH, ST.: **The influence of herbicides on weeds in vineyards** · Die Wirkung einiger Herbizide auf Unkraut in den Weingärten (slowak.)
Vinohrad (Bratislava) **21**, 80—81 (1983)

The best results when using herbicides in vineyards are secured with Roundup, which can destroy all kinds of weeds. Its action is a little sluggish in comparison with Semparol. It is recommended to protect the vine leaves when applying Roundup. The lasting types of the weeds can be destroyed in totality. A dosis of 10 kg Simazin/ha is recommended for the elimination of the common types of weeds. Semparol has no effect on the underground parts of the weeds. *J. Blaha* (Brno)

LAVÍN A., A.: **Effets de l'acide gibbérellique, de l'écourtage des grappes et de l'incision annulaire sur le rendement et quelques caractéristiques des baies de raisin (*Vitis vinifera*), cv. Moscatel Rosado** · Effects of gibberellic acid, bunch docking and cane girdling on yield and some berry characteristics in grapevine (*Vitis vinifera* L.), cv. Moscatel Rosada (span. m. engl. Zus.)
Agricult. Tec. (Santiago, Chile) **42**, 173—176 (1982)
Substa. Exp. Cauquenes (INIA), Cauquenes, Maule, Chile

2 types d'essais ont été réalisés à Cauquenes (Chili), afin d'évaluer l'efficacité de la pratique de l'incision annulaire sur les rameaux et de l'écourtage des grappes, combinés ou non à l'application d'acide gibbérellique GA_3, comme techniques susceptibles d'être utilisées pour le raisin de table du cv. Moscatel Rosado. — De ces essais il ressort que l'application de 50 ppm de GA_3 avec ou sans écourtage des grappes tend à augmenter leur poids de façon significative. Sans écourtage, GA_3 provoque la réduction du pourcentage de matières solubles et l'augmentation de l'acidité totale dans les

fruits alors que l'écourtage pratiqué seul réduit cette acidité totale. GA_3 provoque une augmentation du nombre des baies dont le diamètre est supérieur à 1 cm mais le poids moyen est amoindri. Le résultat est inverse pour les baies de diamètre inférieur à 1 cm. — De l'incision annulaire pratiquée seule il résulte une augmentation du poids des grappes situées au dessus de celle-ci et une diminution du poids de celles situées au dessous de l'incision. L'application de GA_3 annule l'effet de l'incision. *M. Broquedis* (Talence)

LAVÍN A., A.: **Effet des méthodes de l'application de sulfate de potassium et de la pluie sur un vignoble non irrigué, cv, Pais** · Effect of application methods of potassium sulphate and rainfall on a dryland vineyard, cv. Pais (span. m. engl. Zus.)
Agricult. Tec. (Santiago, Chile) **42**, 193—198 (1982)
Substa. Exp. Cauquenes (INIA), Cauquenes, Maule, Chile

Différents systèmes d'application de sulfate de potassium ont été comparés dans un vignoble non irrigué de la Station Expérimentale de Cauquenes, de 1972 à 1979. Les résultats obtenus ont permis de conclure que la teneur en K dans les tissus peut être élevée dans ce type de vignoble quel que soit le mode d'application et en général ce ne sont pas les éléments N, P et K qui limitent la production mais plutôt la quantité de pluie annuelle et sa répartition qui constitue le facteur le plus important. L'application de K à une profondeur de 20—40 cm assure de meilleurs rendements que celle pratiquée traditionnellement en surface. *M. Broquedis* (Talence)

LAVÍN A., A.: **Effect of different fertilizer application methods during the formation period of vines, cv. Cinsault, at Cauquenes, Chile** · Wirkung unterschiedlicher Methoden der Düngeranwendung beim Stockaufbau von Reben, cv. Cinsault, in Cauquenes, Chile (span. m. engl. Zus.)
Agricult. Tec. (Santiago, Chile) **43**, 47—52 (1983)
Substa. Exp., (INIA), Cauquenes, Maule, Chile

The aim of this experiment was to determine the influence of different methods of applying N, P and K fertilizers on growth, yield, and nutritional status of young Cinsault grapevines. The vines were planted in 1972, and the methods studied were: a) pike application; b) furrows at both sides; c) circular bands; and d) planting hole. Data were collected from 1973 to 1979, but for the variable yield/vine it was done for 2 years. The results show that growth — characterized by total growth, trunk (perimeter) and pruning weight — and yield had the best results for the pike application method, closely followed by furrows at both sides. The application in circular bands was less effective, and putting all the fertilizers in planting hole did not show any significant difference compared with the test plots. Petiole analysis showed an increase of P and K with all the methods studied. Nevertheless, all treatements were above the levels considered as critical for grapevines in full production or at flowering. *A. Miele* (Bento Gonçalves)

LEONE, A. M., NOTTE, E. LA, MASSIGNAN, L., LEO, P. DE: **Acetaldehyde, ethanol, methanol and linalool during ripening and storage of the cv. Italia** · Acetaldehyd, Ethanol, Methanol und Linalool während Reife und Lagerung der Rebsorte Italia (ital. m. engl. Zus.)
Vignevini (Bologna) **9** (12), 47—54 (1952)
Ist. Ind. Agrar., Univ. Bari, Italien

Variations in composition of Italia grapes were studied in the period from veraison till maturity. It was found that until harvest the pH increases, the acidity (malic acid) decreases, and the sugar content increases. A considerable increase in linalool content was observed, acetaldehyde and ethanol were found in quantities of 1—2 mg/100 ml and 5—10 mg/100 ml, respectively; methanol was less than 1 mg/100 ml. After harvest the fruit was stored for 90 d. It was found that there was no change in acid content, a very small change in sugar content, an increase in acetaldehyde, ethanol and methanol, and a considerable decrease in linalool. The taste of the fruit depends on % of TSS, % of malic acid and the linalool content. It is therefore recommended to harvest Italia grapes for storage with 15 % TSS, 2 % malic acid and ≈ 2000 µg linalool/kg. *S. Guelfat-Reich* (Bet Dagan)

MAGRISO, YU.: **Water demand of grapevines** · Le besoin d'eau de la vigne (bulg. m. russ., franz. Zus.)

Gradinar. Lozar. Nauka (Sofia) **19** (2), 78-82 (1982)
Nauchnoizsled. Inst. Lozar. Vinar., Pleven, Bulgarien

From the total quantity of water which is absorbed by grapevine, 99 % is spent by transpiration. The yearly demand depends to a high degree on the meteorological conditions and varies between 400 and 1400 mm. One of the most important factors influencing the total water consumption is in any case the deficit of air moisture. Experiments with Afuz Ali showed that the water consumption during the growing season is equal to the deficit sum of air saturation multiplied by the coefficient 0.48. According to the growth curve the water consumption follows in the course of the growing season a parabolic curve with the maximum after bloom time, that means in July. The established regression has practical importance for the calculation of the monthly water demand.

M. Milosavljević (Belgrad)

MAY, P., CLINGELEFFER, P. R., BRIEN, C. J.: **Pruning of Sultana vines to long spurs** · Schnitt von Sultanareben auf lange Zapfen
Amer. J. Enol. Viticult. **33**, 214—221 (1982)
Div. Hort. Res., CSIRO, Adelaide, S. A., Australien

This paper continues a series of classical vine pruning studies with Sultana at Merbein, Australia. Because of low fruitfulness of basal buds, Sultana is cane pruned generally in Australia, California and South Africa. Cane pruning requires about 60 man hrs/ha of skilled labour. Furthermore, this process has not to date heen mechanised, as has been spur pruning. The fundamental aim of this paper was to investigate yield responses of Sultana vines pruned to about 6-node spurs compared to 12-node canes. For vines pruned to similar node numhers, irrespective of cane/spur length, yield and sugar content were similar over a 7-year-period. These results are embraced in 3 new pruning methods called Cane-Spur, Split Cordon and Hedge. With similar yields to the standard cane pruned vines, time for pruning was reduced hy up to 75 %. Authors discuss the commercial application of these results bearing in mind the need to also mechanise harvesting.

R. E. Smart (Ruakura)

MORRIS, J. R., SIMS, C. A., CAWTHON, D. L.: **Effects of excessive potassium levels on pH, acidity and color of fresh and stored grape juice** · Einfluß von überhöhtem Kaliumgehalt [des Bodens] auf pH, Säure und Farbe von frischem und gelagertem Traubensaft
Amer. J. Enol. Viticult. **34**, 35—39 (1983)
Dept. Hort. Food Sci., Univ. Arkansas, Fayetteville, Ark., USA

Using 2-year-old Concord vines, each in a 19 l container, K fertilization in 1981 at 0, 3, 6 and 12 g/week for 17 weeks ending at harvest, afforded K to the vine ranging from normal to excessive. The crop was thinned to 4 clusters/vine. The excessive K did not induce Mg deficiency symptoms on leaves. — The K treatment effect on juice composition indicated that the K level of the petioles had better correlation with fresh and stored juice than did other parts of the plant. Highly significant, positive correlations existed between juice K and juice pH. The excessive levels of K fertilization increased the pH and lowered the acid content of fresh and stored juice. This higher pH resulted in a poorer color quality to the juice and even further color instability on storage.

N. Shaulis (Geneva)

MÜLLER, K.: **Einfluß der Begrünung auf den Wasserhaushalt und die Humusgehalte des Bodens** · Influence of green cover on water regime and humus content of the soil
Dt. Weinbau **38**, 844—848; 857—859 (1983)
Bayer. LA f. Weinbau Gartenbau, Würzburg- Veitshöchheim

In investigations over 8 years (1975—1982) the effects of various kinds of soil cultivation (cultivation of the soil, permanent green cover, and natural temporary green cover with and without refuse--sewage-sludge) were studied. During the growing season all kinds of green cover decreased soil water content especially in the soil layer 0—40 cm, thus in drought periods the water content often reached the wilting point. But as in the soil layer 40—50 cm the water content was normally higher than in plots with cultivation, the mean water supply in green cover plots was at the same level as in plots with cultivation. Without any humus supply both green cover treatments could keep the humus content constant.

E.-H. Rühl (Hohenheim)

MÜLLER, K., PETERNEL, M.: **Der Nährstoffentzug der Rebe bei unterschiedlichem Nährstoffangebot, unter Berücksichtigung der Ertrags- und Qualitätsleistung** · Nutrient uptake of vine at different nutrient supply, in regard to grape yield and quality

Dt. Weinbau **38**, 667—679 (1983)

Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

In a 2-factorial experiment over 3 years (1980—1982) the influence of N fertilization (0, 60, 120, 180, 240 kg N/ha) and of garbage sewage sludge compost (50, 150 t/ha) and K fertilization (160, 320 kg K_2O/ha) on nutrient uptake and yield and quality of grape was measured. Only 1982, a high-yielding year, an increase of yield by N fertilization was found, while in all 3 years the density and the acid content of the must were only slightly influenced by N. Out of the nutrient content of the various vine parts the nutrient uptake/ha was calculated with 72—92 kg N, 10—15 kg P_2O_5, 72—100 kg K_2O, and 8—10 MgO for 100—200 dt grapes/ha. *E.-H. Rühl* (Hohenheim)

MUÑOZ HONORATO, I.: **Effect of planting distance on growth and yield of the cv. Cabernet Sauvignon (*Vitis vinifera* L.)** · Wirkung des Pflanzabstandes auf Wachstum und Ertrag der Rebsorte Cabernet Sauvignon (*Vitis vinifera* L.) (span. m. engl. Zus.)

Agricult. Tec. (Santiago, Chile) **42**, 303—308 (1982)

Esta. Exp. La Platina (INIA), Santiago, Chile

In this experiment the effect of different spacings on yield and growth of Cabernet Sauvignon grapevines was studied. The vine spacings (m) used were: 2.0 × 1.0, 2.0 × 2.0, 3.0 × 2.0, 3.0 × 2.5, 3.5 × 2.0, and 3.5 × 2.5, with planting densities of 5000, 2500, 1666, 1333, 1428, and 1142 vines/ha, respectively. Grapevines were conducted in a 3-wire vertical system and pruned in a Guyot system, leaving 80,000 buds/ha for all treatments. Data of the following variables were mesaured: yield/vine, yield/ha, number of clusters/vine, weight of prunings/vine, and trunk diameter. The results show that the yield/vine increased as the vine density decreased. However, the yield/ha was directly proportional to the vine density. The number of clusters/vine followed the same pattern as yield/vine. The weight of prunings/vine showed higher values for the low density treatments, while the trunk diameter had the same tendency as well. *A. Miele* (Bento Gonçalves)

NELSON, K. E.: **Effects of in-package sulfur dioxide generators, package liners, and temperature on decay and desiccation of table grapes** · Einfluß von mitverpackten SO_2-Generatoren, Verpackungseinlagen und Temperatur der Fäulnis und Austrocknung von Tafeltrauben

Amer. J. Enol. Viticult. **34**, 10—16 (1983)

Dept. Viticult. Enol., Univ. California, Davis, Calif., USA

The possibility of exporting Emperor and Thompson Seedless table grapes to distant markets, without refrigeration, was examined. Table grapes, not refrigerated immediately after harvest, are susceptible to decay and lose their fresh appearance (turgidity, green stems). The grapes were packed either in corrugated cartons (Emperor) or in Chilean lugs (Thompson Seedless). Berries inoculated with *Botrytis cinerea* to enhance decay were inserted between the grapes. The fruit was stored at 25 °C or 10 °C for 2—6 d sometimes followed by 4 d at 0 °C. To prevent decay the grapes were treated with SO_2 by fumigation, or by in-package generators with 1.5 g or 2.7 g $NaHSO_3$. To control the fresh appearance of the grapes, unvented or differently vented polybags or liners were fitted into the packs. The results showed that Emperor and Thompson Seedless grapes could be maintained in good quality at 25 °C for 3—4 d after harvest, when packed in unvented polyliners with a 2.7 g $NaHSO_3$ generator. *S. Guelfat-Reich* (Bet Dagan)

RIFFIOD, G.: **La lutte chimique contre les adventices** · Chemical weed control

Phytoma (Paris) (345), 23—26 (1983)

Serv. Protect. Vég., Beaune, Frankreich

This is a general review on the present situation of weed control in French vineyards: Description of the evolution of the flora in the vineyards, after a long term application of herbicides; presentation of the applied herbicides with special notification on their efficacy and particularities; description of application methods as well as of the newly introduced material for safer application.

B. Daris (Athen)

SERRALHEIRO, J. A., CUNHA, J. P.: **A study on fruit set in some regional grapevine varieties of Oeste** · Untersuchung des Fruchtansatzes bei einigen einheimischen Rebsorten von Oeste (port. m. engl., franz. Zus.)
Ciênc. Téc. Vitivinîc. (Dois Portos) **1** (1), 9—17 (1982)
Esta. Vitivinic. Nacl., Dois Portos, Portugal

The objective of this work was to study the fruit set of 3 traditional grapevine cvs. — Fernão Dias, Vital, and João de Santarém —, of the Oeste region of Portugal. For each cv., 12 bearing units of 9 buds were taken, and the fruit set was determined by counting the number of flowers/cluster and the number of berries/cluster. The results show that the cv. João de Santarém had the lowest fruit-set percentage and the lowest number of berries/cluster. In relation to bud position, the fruit set was generally higher in the 3 last buds, and it was considerably affected by the climatic conditions.
A. Miele (Bento Gonçalves)

SCHUMANN, F., WADLE, H.: **Zur Verwendung von Paraffinen in der Rebenveredlung** · Use of paraffins when grafting vines
Dt. Weinbau **38**, 528—531 (1983)
LLFA f. Landwirtsch. Wein- Gartenbau, Neustadt/Weinstr.

The purposes of paraffining grafts are: Protecting graft union and scion from desiccation; preventing fungus infections; avoiding displacements of the cut-surface; controlling spider mites (Tetranychidae); retardation of bud burst. — Over 10 years, investigations with 3 types (14 preparations) of grafting waxes were carried out to study their influence when applicated before callusing or before planting the grafts into the nursery. The results are: Composed paraffins with a wide range of melting temperatures are more convenient because an elastic coat is formed. The temperatures of the paraffins used showed no distinct relations to the yields of negotiable plants. As to the production of greenhouse forced bench grafts, paraffins with a low melting point should be preferred so that they do not injure the new shoot growth. With the tested stock cvs. Kober 5 BB, Kober 125 AA, and Teleki 5 C no correlations between wax and percentage of rooted grafts were found; only the rootstocks with delayed callusing (SO 4, *V. cinerea* hybrids) require preparations with growth substances. In case of high *Botrytis* infection levels the admixtures of paraffins, containing special fungicides, are advisable.
B. H. E. Hill (Lauffen)

WALLINDER, C. J., TALBERT, R. E., MORRIS, J. R.: **Response of "Concord" grapes to glyphosate exposure** · Reaktion von Concordreben auf Glyphosat
HortScience **18**, 57—59 (1983)
Dept. Agron. Hort. Food Sci., Univ. Arkansas, Fayetteville, Ark., USA

Glyphoste (2.2 and 4.4 kg/ha) was applied to low-hanging foliage and basal shoots of Concord vines in August, September and October 1979. Injuries were still evident on the vines in the following spring and during the entire growing season. A 50 % reduction of growth was noticed and the September treatment appeared to be the most harmful one.
B. Daris (Athen)

WHITING, J. R.: **Response of Zante grapevines to cane and harvest pruning** · Reaktion der Tafeltraubensorte Zante auf die Ernte der Trauben mit Trieben
Amer. J. Enol. Viticult. **33**, 185—190 (1982)
Dept. Agricult., Sunraysia Hort. Res. Inst., Irymple, Vic., Australien

Experiments of cane and harvest pruning of Zante grapevines were carried out for 7 years in the Australian Murray Valley, to compare the effect on yield and fruit quality. Spur pruning (2 nodes spurs; 56 nodes) were used as control. Cane and harvest pruning consisted of 4, 6, 8, and 14 node canes (56, 84, 112 nodes, respectively). Significant differences were found in dry weight yield between the 8 cane pruning treatment and all other treatments (especially spur pruning). The mean annual yield was significantly lower on harvest-pruned vines than on control vines, and the weight of clusters was lower with fewer berries/cluster. Harvest-pruned vines had greater berry drop. The raisins from harvest-pruned vines were more attractive in appearance and had a more even berry size.
S. Guelfat-Reich (Bet Dagan)

F. BODEN

ETCHEVERS B., J., MERINO H., R., VIDAL P., I., RIQUELME F., E., LLANOS R., F.: **Nutritional survey of vineyards in the coastal zone of the VIII region of Chile** · Übersicht über den Ernährungszustand von Rebanlagen im Küstengebiet der Region VIII in Chile (span. m. engl. Zus.)
Agricult. Tec. (Santiago, Chile) **43** (1), 13—20 (1983)
Dept. Agron., Univ. Concepción, Chillán, Chile

A nutritional survey was done on 50 vineyards — cv. País — growing in the coastal zone of the provinces of Ñubles and Concepción, VIII Region of Chile. The grapevines studied were over 40 years old. Samples of leaf blades and/or petioles were taken at flowering from leaves opposite the first clusters of the shoots. The contents of N, P, Ca, Mg, Na, Zn, and Mn were determined in leaf blades; those of $N\text{-}NO_3^-$ and B in petioles; and of K in both leaf blades and petioles. The results show N, K, and B deficiencies in > 85 % of the vineyards, while Zn deficiency was observed in 14 %.
A. Miele (Bento Gonçalves)

G. ZÜCHTUNG

ALLEWELDT, G.: **Collection, conservation et mise en valeur des ressources génétiques de la vigne** · Collection, preservation and making available grapevine gene banks
Bull. OIV **56**, 91—103 (1983)
BFA f. Rebenzücht. Geilweilerhof, Siebeldingen

This paper advocates establishing a worldwide network of gene banks for the various *Vitis* spp. The paper points out how genetic variation is diminishing due to loss of natural habitat for wild spp. and perpetual selection of cvs. Author lists factors affected by genotype including: cold hardiness, pathogen sensitivity and salt tolerance. Comment is also made on the economies of several maintenance strategies such as tissue culture, bud culture and seeds. There is also a section on specimen description and proposed registry protocols. Author concludes with a set of 7 recommendations for establishing a worldwide *Vitis* gene bank. *R. E. Subden* (Guelph)

BOUQUET, A.: **La recherche de porte-greffe résistants: une voie nouvelle dans la lutte contre le court-noué de la vigne?** · Breeding resistant rootstocks: a new approach to control grape fanleaf virus?
Progr. Agric. Vitic. (Montpellier) **100** (9), 256—259 (1983)
Sta. Rech. Viticult. (INRA), Pont-de-la-Maye, Frankreich

Muscadine grapes did not show any symptoms of fanleaf after inoculation with infective *Xiphinema index*. The use of the muscadine grape in rootstock breeding through hybridization with classic rootstock varieties is discussed. *R. Wagner* (Villeneuve-les-Maguelonne)

CSIZMAZIA, J., BEREZNAI, L.: **A short review of the new improved red wine-grape varieties bred in Eger** · Kurze Beschreibung der in Erlau gezüchteten neuen Rotweintraubensorten (ungar. m. russ., dt., engl. Zus.)
Szölötermesztés Borászat (Kecskemét) **4** (3), 5—7 (1982)

Authors obtained from the crossing (Teinturier × Kadarka) × (Medoc × Csabagyöngye) 3 new red wine cvs. Titan, Agria, and Tizian, the properties of which are summarized.
Á. Hegedüs (Budapest)

GOLODRIGA, P. Y.: **Fond génétique de la vigne** · Gene pool of grapevine
Bull. OIV **56**, 247—267 (1983)
Vses. Nauchno-Issled. Inst. Vinodel. Vinogradar. Magarach, Yalta, UdSSR

After a recall on grape origin and diversification all around the world, Author submits a large unified and international programme devoted to the study of grape spp. and cvs.; the main directions

for this work would be the followings: (1) to prospect and collect wild grapes in every location but especially in the centers of origin; many ampelographic collections would be planted under very different ecological conditions; (2) to study this plant material with a common method in order to build a bank of data; (3) to use these data in the breeding work for new varieties, a hypothetical portrait of the "ideal" cv. is given. *J. P. Doazan* (Pont-de-la-Maye)

KIRÁLY, F., KISS, E., SZÖKE, L., GÁBOR, G.: **Die weiße Keltertraubensorte Zenit und die neue Keltertraubensorte Badacsony 8** · Zenit white wine grape variety and new variety Badacsony 8 (ungar. m. russ., dt., engl. Zus.)
Szölötermesztés Borászat (Kecskemét) **4** (3), 1—4 (1982)

2 ungarische Neuzüchtungen (weiße Keltertrauben) werden beschrieben. Beide stammen aus einer Kreuzung Ezerjo (Kolmreifler) × Bouvier. Die staatlich anerkannte Sorte Zenit bringt einen Durchschnittsertrag von 12—14 t/ha mit einem Mostgewicht von etwa 21 °Kl. Sie ist in der ersten Septemberhälfte reif und liefert einen feinen aromareichen Wein mit fruchtiger Säure. Gegen *Botrytis* ist sie ziemlich widerstandsfähig. Wegen ihrer Frostempfindlichkeit soll sie nur in guten Hanglagen angepflanzt werden. Badacsony-8 reift Mitte September und bringt etwa gleiche Erträge und Mostgewichte. Gegenüber *Botrytis* ist sie empfindlicher, hat aber eine sehr gute Frostfestigkeit. In besonders guten Jahrgängen können davon auch Trockenbeerenauslesen (Aszu-Weine) hergestellt werden. *J. Csizmazia* (Budapest)

LOGOTHETIS, B.: **Recherches sur le *Vitis silvestris* en Grèce** · Investigations on *Vitis silvestris* in Greece
Progr. Agric. Vitic. (Montpellier) **100** (2), 57—60 (1983)
Univ. Thessaloniki, Griechenland

Places where the wild grape is still growing are mapped. This work required long and extensive investigations, especially in the northern part of Greece. The eastern Mediterranean region is of special interest for this research, because wild grapes are numerous and show big phenotypic variation. *R. Wagner* (Villeneuve-les-Maguelonne)

LUCZKA, C. J.: **Stilbene phytoalexins and susceptibility to *Botrytis cinerea* in *Vitis*** · Stilben-Phytoalexine und Anfälligkeit von *Vitis* gegenüber *Botrytis cinerea*
Diss. Fac. Grad. Sch., Cornell Univ., 81 S. (1982)

10 spp. of *Vitis* (greenhouse plants) were studied for their ability to produce the stilbene phytoalexins resveratrol and ε-viniferin and for their susceptibility to *Botrytis cinerea*. Resveratrol and ε-viniferin were measured with HPLC, and the absorbance was analyzed spectrophotometrically. UV irradiation (254 nm) and *B. cinerea* inoculation (with drops of a spore suspension) induced similar amounts of resveratrol in the mid-shoot leaves used. The correlation between stilbene production and susceptibility did not show a clear negative linear correlation: some spp. produced high amounts of resveratrol and were resistant to *B. cinerea*, others produced low amounts and were susceptible and some were less susceptible and did not produce high amounts of stilbenes — but supp. with high stilbene levels and high susceptibility were never detected. — An additional examination of 15 *Vitis* cvs. and their progenies led to some inconsistent results. The use of different methods and variations in the environment of adult plants and seedlings can be the reason. — A good introduction and a literature review for stilbenes and disease resistance in *Vitis* are given.
U. Stein (Geilweilerhof)

LUNTZ, O., FARKAS, G.: **General survey of exempting grapevine from virus diseases and results** · Stand und Ergebnisse der Erzeugung virusfreier Weinreben (ungar. m. russ., dt., engl. Zus.)
Szölötermesztés Borászat **4** (4), 7—8 (1982)

25 virus-free cvs. and clones — 20 *Vitis vinifera* cvs. and 5 rootstocks — were obtained by testing over 10 years, 38 vines each. Their rapid propagation is in course. *A. Hegedüs* (Budapest)

RAJASEKARAN, K., MULLINS, M. G.: **Influence of genotype and sex-expression on formation of plantlets by cultured anthers of grapevines** · Influence du génotype et du sexe

sur la formation de plantes entières par culture d'anthères de vigne (m. franz. Zus.)
Agronomie (Versailles) **3**, 233—237 (1983)
Dept. Agron. Hort. Sci., Univ. Sydney, N.S.W., Australien

Embryos were produced in large numbers from callus of somatic origin formed by cultured anthers of several spp. and hybrids of *Vitis* and by a native Australian *Cissus*. Grenache was the only *V. vinifera* cv. that produced embryos. The ability of anthers to form callus and embryos varied with genotype. Anthers from male plants had a greater propensity for callus and embryo formation than anthers from female or hermaphrodite plants, or anthers from male inflorescences feminized by cytokinins. The performance *in vitro* of hybrids between regenerative male and non-regenerative female parents showed that formation of callus and embryos from cultured embryos is a heritable character. The results, which extend Authors' earlier findings with Gloryvine, contribute to our knowledge of embryogenic competence in *Vitis*, and also permit the technique to be considered for incorporation into grapevine improvement programmes using tissue culture.
K. G. M. Skene (Adelaide)

TRUEL, P.: **Objectifs de l'amélioration variétale des raisins de table: problèmes rencontrés au niveau de la production française** · Intention of varietal improvement of table grapes: Problems occurring in the French production
Progr. Agric. Vitic. (Montpellier) **99**, 495—499 (1982)
Sta. Rech. Vitic., INRA, Montpellier, Frankreich

Author lists consumer preference for table grapes generated from marketing data in France. Consumers prefer: large berries, conical in shape, loose but not "empty" bunches, with all berries ripe at the same time. The point is made that growers and marketing agencies should select a sequence of cvs. that can be harvested over a longer period of time and that greater market penetration could be achieved by examining other cvs. to improve appearance, maintain taste and reduce wastage through separated berries. *R. E. Subden* (Guelph)

ZAMBONI, M., BOSELLI, M., FREGONI, M.: **Results of "Barbera" and "Bonarda" crossbreedings in the region of Piacenza** · Ergebnisse von Kreuzungen zwischen Barbera und Bonarda in der Gegend von Piacenza (ital. m. engl. Zus.)
Vignevini (Bologna) **10** (1—2), 15—19 (1983)
Catted. Viticolt., Univ. Catt., Piacenza, Italien

Barbera and Bonarda vines were interbred and the properties of the first 190 seedlings are reported. In most cases the sugar content seems to be increased whereas the acidity was decreased. Some interesting breedings with a high fertility of buds and a low average weight of bunches correlated with an increased sugar level are reported. *R. Blaich* (Geilweilerhof)

H. PHYTOPATHOLOGIE

ACCOTTO, G. P.: **Immunosorbent electron microscopy for detection of fanleaf virus in grapevine** · „Immunosorbent electron microscopy" zur Bestimmung des Fanleafvirus bei der Rebe (m. ital. Zus.)
Phytopathol. Mediter. (Bologna) **21**, 75—78 (1982)
Ist. Fitovirol. Appl. CNR, Torino, Italien

Grapevine fanleaf virus was detected by immunofluorescent electron microscopy from May to November in leaves of field-grown vines and during the winter in the stem cortex or in dormant buds. Detection was also possible in glasshouse-grown cuttings and in lyophilised leaves of field plants. Samples were ground in 0.1 M phosphate buffer containing 5 % nicotine. Use of 2 % polyvinylpyrrolidone or 1 % polyethylene glycol instead of nicotine gave good results, even better than with nicotine. Detection of the virus by mechanical inoculation gave less consistent results than immunosorbent electron microscopy. Maximum sensitization of the grids with the antiserum was obtained already after 5 min at 22 °C, whereas the number of particles trapped on the grid regularly increased when the incubation period was increased from 7 min to 4 h. Further increase of the incubation up to 32 h did not appreciably increase trapping efficiency. *R. Bovey* (Nyon)

ALVAREZ A., M., Vargas B., V.: **Effect of field applications of fungicides and of SO_2 as postharvest treatment in the control of *Botrytis cinerea* PERS., in stored grapes, cv. Thompson Seedless** · Wirkung von Fungizidanwendung vor und SO_2-Behandlung nach der Ernte zur Bekämpfung von *Botrytis cinerea* PERS. bei gelagerten Trauben der Sorte Thompson Seedless (span. m. engl. Zus.)
Agricult. Tec. (Santiago, Chile) **43** (1), 61—66 (1983)
Substa. Exp., (INIA), Cauquenes, Maule, Chile

Thompson Seedless grapes trained on a pergola system at San Felipe (Aconcagua Valley) were sprayed 2 or 4 × against *Botrytis* with Benomyl, Vinclozolin, Glycophene, Captan or Dicloran. Then the following subtreatments were applied: (1) fruits received a postharvest fumigation with SO_2, (2) a 2-stage SO_2 generator was added when packed or (3) packing was done with no additional treatment. Grapes were subsequently kept in cold storage and *B. cinerea* decay was evaluated after 25, 45 and 68 d. When fruits were fumigated with SO_2 no effect of the fungicides previously applied was observed on the control of *Botrytis*. When grapes were packed with an SO_2 generator or did not receive SO_2 at all, effect of the preharvest treatments was observed for the 3 dates of evaluation. There was no difference between 2 or 4 applications of the fungicides. In general, fumigation with SO_2 was more effective than the use of an SO_2 generator in the control of decay.
J. P. Doazan (Bordeaux)

ANTONACCI, D., Tarantino, L.: **Effectiveness of botryticides in a vineyard with hail-damaged table grapes** · Wirksamkeit von Botrytiziden in einer hagelgeschädigten Tafeltraubenanlage (ital. m. engl., franz. Zus.)
Riv. Viticolt. Enol. (Conegliano) **36**, 28—35 (1983)
Ist. Sper. Viticolt., Bari, Italien

Benomyl, Iprodione, Vinclozolin and Procymidone were used according to phenological criteria. Under the test conditions (grapes seriously damaged by hail) Procymidone was found to be the most effective agent against grey mould.
M. Bisiach (Mailand)

BARLASS, M., Skene, K. G. M., Woodham, R. C., Krake, L. R.: **Regeneration of virus-free grapevines using *in vitro* apical culture** · Regeneration virusfreier Reben aus der *in-vitro*-Kultur von Sproßspitzen
Ann. Appl. Biol. **101**, 291—295 (1982)
Div. Hort. Res., CSIRO, Adelaide, S.A., Australien

The graft-transmissible diseases leafroll, yellow speckle, fleck, and summer-mottle can be eliminated by shoot apex culture of grapevines. To produce vines free from fanleaf virus, this method must be combined with heat therapy. Plants free of yellow speckle are obtained only from cultures incubated at 27/20 °C (day/night) but not at 35 °C. The possible mechanisms of elimination are discussed.
R. Blaich (Geilweilerhof)

BELLI, G., Fortusini, A., Vegetti, G.: **Arabis mosaic isolated from grapevine in Italy** · Arabis-mosaic-Virus isoliert aus Reben in Italien (ital. m. engl. Zus.)
Riv. Patol. Veg. (Pavia) **38**, 175—177 (1982)
Ist. Patol. Veg., Univ. Mailand, Italien

An isometric virus of about 30 nm in diameter has been isolated from a grapevine showing symptoms of corky bark and stem pitting in northern Italy. On the basis of host range and serological tests by double diffusion in agar, the virus has been identified as a strain of arabis mosaic virus. So far, no relation could be established between this virus and the symptoms of corky bark and stem pitting observed on the original grapevine. This is the first record of arabis mosaic virus on grapevine in Italy.
R. Bovey (Nyon)

BESSELAT, B.: **La lutte contre la pourriture grise** · Grey mould control
Phytoma (Paris) (348), 27—31 (1983)
Serv. Protect. Vég., Bordeaux, Frankreich

Disease symptoms, biological cycle of the pathogen and predisposing factors of the disease are illustrated. Indirect and direct methods for the control of the alteration are then dealt with, as well as the methodology of fungicide distribution. A mathematical model intending to represent the potential status of *B. cinerea* infection, its possible use in disease management and results obtained are illustrated. Finally the problem of resistance of *B. cinerea* to dicarboxymides, as recently observed in France, is discussed and strategies to be used in various habitats as a function of disease severity are indicated. *M. Bisiach* (Mailand)

BISIACH, M., MINERVINI, G., ZERBETTO, F., VERCESI, A.: **Biological and epidemiological aspects of *Botrytis cinerea* and criteria for its prevention in grapevine** · Biologische und epidemiologische Gesichtspunkte bei *Botrytis cinerea* und Kriterien für die Anwendung von Botrytiziden bei Reben (ital. m. engl. Zus.)
Vignevini (Bologna) **9** (12), 39—46 (1982)
Ist. Patol. Veg., Univ. Mailand, Italien

This paper summarizes the results of investigations on the biology and epidemiology of *Botrytis cinerea* carried out in central and northern Italy for the last 5 years. Several interacting factors such as the influence of the cv. and phenological stages on the susceptibility of grapevines to grey mould and the role plaid by climate on the onset and evolution of epiphytotics have been considered. Information on inoculum potential and its trend throughout the vegetating season and on other factors promoting infections (e.g. disappearance of enzyme inhibitors in the berry skin, microlesions, prolonged wetting of susceptible organs, etc.) is essential for adopting efficient protection measures. Optimal control of grey mould was obtained with 3 applications of dicarboxymides (Vinclozolin, Procymidone, Iprodione) at the end of blooming, at the beginning of ripening and 3—4 weeks before harvesting. In no case a reduction of the efficiency of the treatments was observed after many years of application in the same vineyard, thus suggesting that there was no development of dicarboxymide-resistant *B. cinerea* strains. In addition, the problem of sour rot of bunches and the indirect activity of dicarboxymides on this disease is discussed.
G. P. Martelli (Bari)

BOLLER, E.: **Ansätze für einen gesamtheitlich konzipierten Pflanzenschutz im Weinbau** · Suggestions for an integrated system of plant protection in viticulture
Schweiz. Z. Obst- Weinbau **119**, 94—103 (1983)
Eidgenöss. FA f. Obst- Wein- Gartenbau, Wädenswil, Schweiz

The agro-oecosystem "vineyard" is investigated with regard to its components and their mutual interrelation from the aspect of planning and integrated plant protection system. This includes: cultural methods, soil and fertilization, plant protection, pathogens, predators and antagonists. — By means of different models, based on the situation of the eastern part of Switzerland, the interrelations between these different groups are shown. Hence, the existence of a remarkable complexity becomes evident. Author then tries to indicate integrated control models for different levels of organisation in commercial grape production: for average viticultural farms, for entire areas of viticulture and for small and/or specialized viticultural farms. Considering these aspects, the question "Integrated control — utopian scheme or reality?" has to be answered positively in the Author's opinion as far as viticulture is concerned. *D. H. Lorenz* (Neustadt)

BRENDEL, G.: **Die biologische Leistung verschiedener Applikationsverfahren im Rebschutz** · The biological efficiency of different application techniques in vine protection
Dt. Weinbau **38**, 480—485 (1983)
Inst. Phytomed. Pflanzensch., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

Mehrjährige Feldversuche zur Bekämpfung von Pilzkrankheiten (*Oidium* und *Botrytis*) im Weinbau mit verschiedenen Applikationsverfahren und Pflanzenschutzgeräten zeigten hinsichtlich ihrer Wirksamkeit keine abgesicherten Ergebnisse, lassen jedoch Tendenzen erkennen. — Ziel der Untersuchungen war zum einen die Reduzierung der Brüheaufwandmenge von 1000 über 150 zu 25 l/ha bei gleichzeitiger Verringerung der Tropfengröße; zum anderen sollte durch neue Applikationstechniken (Rotationszerstäuber, Querstromgebläse, elektrostatische Aufladung der Tropfen) die Wirkstoffanlagerung an der Pflanze verbessert werden. Die besten biologischen Erfolge sind offenbar mit Sprühgeräten, die ein Querstromgebläse besitzen und mit Brüheaufwandmengen von

150 l/ha arbeiten, zu erreichen. Mit elektrostatischer Tropfenaufladung sollen gegenüber üblichen Sprühverfahren (Axialgebläse, 1000 l/ha) teilweise bessere Wirkungsgrade zu erzielen sein. Diese Ergebnisse müssen durch weitere Untersuchungen erhärtet werden. *E. Moser* (Stuttgart)

BURR, T. J., KATZ, B. H.: **Isolation of *Agrobacterium tumefaciens* biovar 3 from grapevine galls and sap, and from vineyard soil** · Isolierung von *Agrobacterium tumefaciens* Biovar 3 aus Gallen- und Blutungssaft von Reben und aus Weinbergsboden
Phytopathology **73**, 163—165 (1983)
Dept. Plant Pathol., N. Y. State Agricult. Exp. Sta., Cornell Univ., Geneva, N. Y., USA

Agrobacterium tumefaciens (predominantly AT 3) was isolated from grapevine galls, sap of "bleeding vines" and from vineyard soil using a selective medium. Most strains caused also galls on tomato and sunflower inoculated in greenhouse tests. *R. Blaich* (Geilweilerhof)

CAUDWELL, A.: **L'origine des jaunisses à mycoplasmes (MLO) des plantes et l'exemple des jaunisses de la vigne** · On the origin of mycoplasm (MLO)-induced yellows diseases in plants, the example of grapevine yellows (m. engl. Zus.)
Agronomie (Versailles) **3**, 103—111 (1983)
Sta. Physiopathol. Vég., Dijon, Frankreich

The origin of the so-called "yellows diseases" (caused by MLOs = mycoplasma-like-organisms) in plants is discussed. Author supports the hypothesis of the existence of "natural cycles" of MLOs between symptomless wildplants and unaffected vectors. Disease outbreaks occur by intrusion of cultivated plants (direct mode) or of an imported insect (indirect mode): the direct mode seems to be the most common. This analysis, applied to the example of grapevine yellows, is in favour of a European origin for the "bois noir" pathogen and of a north American origin for the "flavescence dorée" pathogen. *G. Belli* (Mailand)

DUBOS, B., BUGARET, Y., BULIT, J., ROUDET, J.: **Maladies du bois: Symtômes et méthodes de lutte** · Diseases of grapevine wood: symptoms and control methods
Phytoma (Paris) (344), 16—19 (1983)
Sta. Pathol Vég. (INRA), Bordeaux, Frankreich

Vine wood diseases caused by *Eutypa armeniacae, Phellinus ignarius* and *Phomopsis viticola* are described and thoroughly illustrated. Control methods for the 3 diseases are given in clear and concise terms. *M. Bisiach* (Mailand)

GALUŞINSCHI, A., ŢURCANU, P.: **The compatibility of Turdacupral product with antibotrytic and antioidic fungicides in vine** · Die Verträglichkeit von Turdacupral mit Fungiziden gegen *Botrytis* und *Oidium* bei Reben (rum. m. engl. Zus.)
Cercet. Agron. Moldova (Iaşi) **1** (61), 97—100 (1982)
Sta. Cercet. Prod. Vitivinic., Iaşi, Rumänien

Trials conducted in 1979 with Chasselas doré showed that the Romanian fungicide Turdacupral (copper oxychloride, concentration 0.4 %) used against downy mildew is compatible with the *Botrytis* and *Oidium* fungicides Sumilex (Japan) 0.1 %, Rovral 0.1—0.15 %, Derosal 0.15 %, Carbendazim 0.1 %, Topsin M 70 0.1 %, Fundazol 0.1 %, Benomyl 0.1 %. The best results in controlling grey mould were obtained by giving the 1st treatment immediately after flowering, the 2nd when the berries were 3—4 mm in diameter, and the 3rd prior to veraison; if necessary, a 4th treatment may be given in August in case the month was rainy. The fermentation was not influenced by application of these fungicides. *M. Oşlobeanu* (Bukarest)

GAY-BELLILE, F., LACOUTURE, J., SARRAZIN, J. F., COURLIT, Y., MENARD, E.: **Le point sur le mildiou de la vigne. Les fongicides systémiques. Les souches résistantes** · Facts on downy mildew of grapevine. Systemic fungicides. Resistant strains
Progr. Agric. Vitic. (Montpellier) **100** (3), 83—89 (1983)

Downy mildew of grapevine, caused by *Plasmopara viticola*, is the most important disease in the region of Cognac. The disease and the methods to control it have been investigated at the Station

Viticole of Cognac since 1900. Trials with the new systemic fungicides (Al-phosphonate, acylalanines) have been conducted since 1977, and good results have been obtained with spraying intervals of 14 d in the following years. 1982 spots of downy mildew appeared after 5 treatments in the acylalanine-plots. The strains isolated from these plots have not been tested in the laboratory yet, but it is suspected that they are resistant against the acylalanines. Authors therefore recommend to reduce the number of applications to 2 or 3 around blossom time, and not to use the acylalanines in nurseries any longer. *E. Bosshard-Heer* (Wädenswil)

GENDLOFF, E. H., RAMSDELL, D. C., BURTON, C. L.: **Fluorescent antibody studies with *Eutypa armeniacae*** · Untersuchungen über fluoreszierende Antikörper bei *Eutypa armeniacae*

Phytopathology **73**, 760—764 (1983)

Dept. Bot. Plant Pathol., Michigan State Univ., East Lansing Mich., USA

In order to differentiate hyphae of *Eutypa armeniacae* in grapevine wood from hyphae of other fungi in the vicinity of pruning wounds, attempts were made to develop a fluorescent antibody staining technique. Autofluorescence of the wood was reduced by the use of rabbit antisera conjugated with rhodamine isothiocyanate but antisera made to whole cell and cell wall preparations of *E. armeniacae* generally lacked specificity. Specificity was slightly improved by cross-adsorption of the conjugated cell wall antisera with a cell wall preparation of *Phomopsis viticola*. An indirect fluorescent antibody technique that used a goat anti-rabbit rhodamine isothiocyanate-conjugated gamma globulin improved the location of hyphae in wood but it lacked specificity. It failed to differentiate hyphae in wood shown by isolation also to contain *Epicoccum nigrum* and *Alternaria* sp., as well as the antagonist *Fusarium lateritium*. *W. R. Jarvis* (Harrow)

HAUB, G.: **Empfehlungen zur Stiellähmebekämpfung** · Recommendations to reduce stiellähme

Dt. Weinbau **38**, 1057—1062 (1983)

Inst. Phytomed. Pflanzensch., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

In 1982 the application of $MgSO_4$ and of Wuxal Magnesia was effective to reduce stiellähme, when performed just before stiellähme occurred, i.e. before the clusters got closed. Sprinkling the cluster zone only (1200 l/ha, 1 %) was shown to be more effective than spraying the total leaf zone (500 l/ha, 2.5 %). *H. Düring* (Geilweilerhof)

JÄHNL, G.: **Bericht über mehrjährige Stiellähme-Versuche** · Report on studies of stiellähme in several years

Mitt. Klosterneuburg **33**, 9—14 (1983)

HBLuVA f. Wein- Obstbau, Klosterneuburg, Österreich

From 1975 to 1980, the symptoms of stiellähme were studied on 9 grapevine cvs. Clusters inserted close to the stem showed a higher percentage of stiellähme than distal inserted clusters. The anatomy of the "pustules" at the rachis was studied; their number was significantly higher at the rachis showing stiellähme. Ca-Mg sprays (0.5 % $CaCl_2$, 0.5 % MgCl) at several dates from prebloom to veraison reduced the number of diseased clusters. *H. Düring* (Geilweilerhof)

LORENZ, D. H., EICHHORN, K. W.: **Untersuchungen an *Botryotinia fuckeliana* WHETZ., dem Perfektstadium von *Botrytis cinerea* PERS.** · Investigations on *Botryotinia fuckeliana* WHETZ., the perfect stage of *Botrytis cinerea* PERS.

Z. Pflanzenkrankh. Pflanzensch. **90**, 1—11 (1983)

LLFA f. Landwirtsch. Wein- Gartenbau, Neustadt/Weinstr.

A pretreatment of *Botrytis* sclerotia with varying low temperatures induced the formation of primordia of apothecia, which, under the influence of light, developed into a hymenium consisting of inoperculate asci and paraphyses. The unicellular ascospores (13.5 × 6.7 µm) were very similar to conidia. The young ascospores were uninucleate but eventually became multinucleate. Both compatible and incompatible strains (hetero- and homothallic) were isolated.

R. Blaich (Geilweilerhof)

LOUBSER, J. T.: **Nematodes as parasites in vineyards and provisional results regardin the susceptibility of rootstocks** · Nematoden als Schädlinge in Rebanlagen und vorläu fige Ergebnisse hinsichtlich der Anfälligkeit von Unterlagen
Wynboer (Stellenbosch) (615), 57—59 (1983)
Navorsingsinst. Wynk. Wingerdbou, Stellenbosch, RSA

General remarks are made on various plant parasitic nematodes, including occurrence, life cycle and damage caused. Emphasis is placed on *Meloidogyne* spp. It is hypothesized that nematodes may cause annual losses of R 18 mill in South African viticulture. Although of some importance, chemical control, especially in established vineyards, is considered secondary to the use of resistant rootstocks. Investigations were conducted in 4 established experimental vineyards. Indices for plant vigour and nematode infestation were calculated for the various rootstocks to give a sum total expressing resistance. Ramsey (Salt Creek), 99 Richter and 110 Richter were found to be the most resistant cvs., while Fairy and 333 were the most susceptible. *P. C. Smith* † (Stellenbosch)

MAGAREY, P. A., WACHTEL, M. F., EMMETT, R. W.: **Australian vine yellows — a new name** · "Australian vine yellows" — ein neuer Name
Austral. Grapegrower Winemaker (232), 32—33 (1983)

A grapevine disease of the yellows type, causing downward rolling and yellowing of the leaves, stunting of the shoots, with short internodes and poor maturity of the canes, shrivelling of the bunches and yield losses of up to 13 % has been reported in Australia since 1975, affecting the cvs. Rhine Riesling and Chardonnay. Attempts to transmit the disease by graft were not successful. Because of the similarities with the European yellows diseases of grapevine and the fact that the symptoms can be reduced by injecting antibiotics into affected vines, it is assumed that the disease is not caused by a virus, but probably by a mycoplasma-like microorganism. The name of "Australian vine yellows" is proposed. *R. Bovey* (Nyon)

MARAIS, P. G.: **Root rot of grapevines caused by *Phytophthora cinnamomi*** · Wurzelfäule bei Reben verursacht durch *Phytophthora cinnamomi* (afrik.)
Wynboer (Stellenbosch) (615), 60—62 (1983)
Navorsingsinst. Wynk. Wingerdbou, Stellenbosch, RSA

The history of *Phytophthora cinnamomi* infestations and their importance in South African viticulture is shortly sketched. The progress of the disease is described from the appearance of the first symptoms to the death of the plant. This may take as little as 3 weeks. Infested nursery material has been shown to be the most important factor in the spread of the disease. Hot water treatment of dormant nursery material at 50 °C for 15 min is recommended as an effective control measure. Soils with a pH level of 5.5 or lower are more susceptible to infestations with *P. cinnamomi*. No rootstock cv. is immune to the disease but some are more resistant than others. Rootstocks are tabulated according to their degree of susceptibility. *P. C. Smith* † (Stellenbosch)

NAUDIN, R.: **Incidence de la pourriture grise sur la récolte et sur les vins (II)** · Incidence of grey-mould on yield and wines (II)
Vignes et Vins (Paris) (312), 15—27 (1982)

Wines made from benches more or less damaged by *Botrytis* are always defective because of their particular susceptibility to oxydization. The consequences are easily detectable both by analysis and by taste: the varietal aroma is replaced by unpleasant phenolic or iodic smells. The polyphenolic substances are denaturized and the red colour is easily and greatly broken down. Furthermore clarification and filtration are disturbed by the presence of glucane. It is possible to lower the risk of oxydization by different precautions starting from the field up to the cellar: earlier yield, sorting of benches in order to discard rot berries and use of suitable methods of vinification. But the best mean to avoid troubles in wine making is to yield healthy benches. It is now considered that the level of diseased berries must not exceed 15 % for red and 20 % for white wines.
J. P. Doazan (Pont-de-la-Maye)

RAMBIER, A.: **Les acariens de la vigne et les cent ans du Progrès Agricole et Viticole** · Spider mites of the grapevine and the one hundred years of "Progrès Agricole et Viticole"
Progr. Agric. Vitic. (Montpellier) **100** (2), 52—56 (1983)

On the occasion of the 100th anniversary of the journal "Progrès Agricole et Viticole" the article reviews the problems posed by various spider mites of grapevine over the last hundred years and the prospects for the future. *P. Langcake* (London)

RASKI, D. J., GOHEEN, A. C., LIDER, L. A., MEREDITH, C. P.: **Strategies against grapevine fanleaf virus and its nematode vector** · Möglichkeiten der Bekämpfung des Reben-Fanleaf-Virus und des übertragenden Nematoden
Plant Disease (St. Paul) **67**, 335—339 (1983)
Dept. Plant Pathol., Univ. California, Davis, Calif., USA

In Californian, vineyards fanleaf disease is caused only by fanleaf virus and transmitted by *Xiphinema index*. Soil fumigation is the only effective control-measure. Nematicides in high dosages and deep placement, additionally with a 1-year fallow rotation, are recommended. The procedure is regarded to be very expensive and not without any risk. — Breeding of rootstocks with multigenetic resistance against virus, vector and phylloxera is in progress in Davis, this would be a good possibility for the future. *M. Rüdel* (Neustadt)

REDL, H.: **Verlauf der Makro- und Mikronährstoffgehalte in Traubengerüst, Beeren und Blättern während der Reifephase in Beziehung zum Auftreten der Stiellähme** · Development of the macro and micro nutrient contents in grape-stalks, berries and leaves during maturation in connection with the occurrence of stiellähme (m. engl., franz. Zus.)
Mitt. Klosterneuburg **33**, 39—59 (1983)
Bundesanst. Pflanzensch., Wien, Österreich

The mineral content of clusters and leaves of Grüner Veltliner, Riesling, Scheurebe and St. Laurent grapevines growing in different vineyards in Austria was analysed during the period of berry development. With a few exceptions the content of N, P, K and Cu of the leaf blades decreased from anthesis to October, while that of Ca, Mg, Al, Fe, Zn, Mn and Mo increased. B, Na, and Si showed hardly any changes. K, Fe, Zn and Mo reached their maximum in August-September. All mineral substances decreased in a linear manner in the developing berries, except of Al and Zn, which always had a maximum in September, while K only sometimes increased to a maximum in September. Two thirds of the pedicels showing punctiform initial symptoms of stiellähme had higher contents of N, P, K and Zn and lower contents of Mg, Fe, B, Al and Si compared to healthy looking pedicels. The stems of the rachis had higher contents of Ca, Mo, Al und Si. Leaf blades of plants showing stiellähme symptoms in most cases had higher contents of Al, Si, N, B, Cu, and Fe but lower contents of Mg. 1 week before stiellähme appeared, Na, Zn, Al and Si accumulated in the rachis, and Zn and Mo in the berries. The often discussed imbalance in the K/Ca, Mg ratio in plants showing stiellähme is not supported by these results. *H. Düring* (Geilweilerhof)

REDL, H., WEINDLMAYR, J.: **Der Einfluß der Stickstoffversorgung des Bodens auf das Auftreten der Stiellähme bei Trauben** · Influence of nitrogen supply of the soil on the occurrence of stiellähme with grapes (m. engl., franz. Zus.)
Mitt. Klosterneuburg **33**, 1—8 (1983)
Inst. Pflanzensch., Univ. Bodenkult., Wien, Österreich

In 5 different parts of Austria the possible relation between N supply and stiellähme was analysed using 6 cvs. Stiellähme occurred always independent of the quantity and the distribution of N present in the soil in a mobile form (N_{min} or $N_{water\ soluble}$). However, the N content of the stems of clusters showed considerable changes at the time when stiellähme symptoms became visible, i.e. it increased in 70 % of the diseased stems, but not in the corresponding berries.
H. Düring (Geilweilerhof)

SCHMID, A., RABOUD, G., ANTONIN, PH., BAILLOD, M.: **La boarmie, un ravageur des bourgeons de la vigne** · 'Boarmia', a pest of grapevine buds (m. dt. Zus.)
Rev. Suisse Viticult. Arboricult. Hort. (Changins) **15**, 63—66 (1983)
Sta. Féd. Rech. Agron., Changins, Nyon, Schweiz

Populations of the moth, *Peribatodes rhomboidaria*, are on the increase in the vineyards of the central Valais. Observations have been made on the swarming of the moths, the hibernation and, espe-

cially, the feeding activity of the caterpillars in the spring at the time when the buds of the vines are breaking and just after. The threshold of tolerance to the pest is becoming very low, given that the distribution of damage on the vine is very varied. Products based on endosulfan and on synthetic pyrethroids give a relatively good protection. — Advantages and disadvantages of these products are discussed. *P. Langcake* (London)

SCHRUFT, G., WEGNER, G., MÜLLER, R. D., SAMPELS, J.: **Das Auftreten von Florfliegen (Chrysopidae) und anderen Netzflüglern (Neuroptera) in Rebanlagen** · The occurrence of green lacewings (Chrysopidae) and other Neuroptera in vineyards (m. engl., franz. Zus.)
Wein-Wiss. **38**, 186—194 (1983)
Staatl. Weinbauinst., Freiburg/Br.

In den Jahren 1981 und 1982 wurde mit Hilfe verschiedener Fangmethoden die Neuropterenfauna südbadischer Rebanlagen untersucht. Es wurden die Imagines von 21 Arten nachgewiesen, die sich auf die Familien Chrysopidae, Hemerobiidae, Myrmeleonidae und Rhaphididae verteilten; die Artzugehörigkeit der Larven wurde nicht bestimmt. Die mit Abstand häufigste Art war die Florfliege *Chrysopa carnea* (früher *Ch. vulgaris*). Ihr zeitliches Auftreten wurde ermittelt: Höhepunkt der Adulten im August, Frühjahrsfänge sind überwinterte Imagines; Larven bevorzugt Ende Mai/Anfang Juni und im August. Zwischen der Verbreitung der Florfliegen und den weinbaulichen Gegebenheiten — flurbereinigte Großterrassen und Kleinterrassen, konventionell und alternativ bewirtschaftete Anlagen — konnte keine eindeutige Beziehung aufgezeigt werden. Der Aufbau starker natürlicher *Chrysopa*-Populationen wird vor allem dadurch beeinträchtigt, daß die Hauptbeute der Larven, Blattläuse, am Reblaub kaum vorkommt. Andererseits deckt sich das Auftreten der Florfliegenlarven auch nicht mit den kritischen Phasen der Spinnmilbenvermehrung. [Über die Vernichtung von Wintereiern der Obstbaumspinnmilbe durch Florfliegenlarven vgl. HAUB *et al.*, Wein-Wiss. **38**, 195—201 (1983).] *G. Rilling* (Geilweilerhof)

SCHÜEPP, H., SIEGFRIED, W.: **Die Traubenfäule 1982 und die teilweise ungenügenden Bekämpfungserfolge mit den Dicarboximid-Fungiziden** · Cluster rot in 1982 and the partially insufficient success in the control with dicarboximide fungicides
Schweiz. Z. Obst- Weinbau **119**, 61—70 (1983)
Eidgenöss. FA f. Obst- Wein- Gartenbau, Wädenswil, Schweiz

Authors review the situation in 1982 with reference to the development of damaging fungi, esp. *Botrytis cinerea*. The relations of *Botrytis* rot to other detrimental organisms and factors are also mentioned. The results are: The dicarboximides (dco) are effective only against *B. cinerea*. Mainly in years with high infection level by other rot fungi (*Penicillium* spp., *Trichothecium* spp.) the efficiency is reduced. Since 1979 a great ascent of dco-resistant *B. cinerea* strains was established. The level of resistance is independent of the dco-concentration, and there is no difference between isolates from various cvs. The percentages of dco-resistant *B. cinerea* strains in vineyards do not allow to predict the probable losses of the dco-effectiveness. Presumably because of the lower vitality of dco-resistant *B. cinerea*, a remarkable decrease of such strains was observed in untreated vineyards. According to the Author's recommendations the cultivation measures and even the plant protection fit in time lead to little expenditure of dco-botryticides without disadvantages to their effectiveness. Before anthesis, however, the applied fungicides for the control of *Plasmopara viticola* should have secondary effects on *B. cinerea*. Dependent on the weather conditions Cu containing organic preparations should be preferred. *B. H. E. Hill* (Lauffen)

VARENNES, A. DE, SEQUEIRA, O. A. DE: **Detection of CM 112 latent grapevine virus by enzyme-linked immunosorbent assay (ELISA). Evaluation of short reaction times and re-use of γ-globulin and conjugate** · Nachweis des latenten Rebenvirus CM 112 durch den ELISA-Test. Bestimmung der kürzestmöglichen Inkubationszeiten und die Wiederverwendung von γ-Globulin und Konjugat (m. port. Zus.)
Agron. Lusit. (Oeiras) **41**, 269—277 (1982)
Inst. Sup. Agron., Tapada da Ajuda, Lissabon, Portugal

The detection of CM 112 latent grapevine virus by ELISA is described. Changes in the sensitivity of the reaction were assessed in relation to changes in the concentrations of reagents and/or the reaction times. The optimum procedure was coating plates with 1/800 dilutions of γ-globulin for 2 h (for

detecting purified virus) or 1/1600 dilutions for 4 h (when plant extracts were assayed), incubating coated plates with antigen for 16 h at 4 °C, followed by a reaction with conjugated antibodies (1/500 dilution) for 4 h. Alternatively the assay could be completed, with decreased sensitivity, in 5 h if relatively concentrated reagents were used to assay moderate concentrations of virus. Solutions of γ-globulin used to coat plates could be reused with relatively little loss of reactivity, as could conjugated antibody preparations, provided high concentrations of antigen were not encountered.

M. Mayo (Dundee)

VERHOEFF, K., LIEM, J. I., SCHEFFER, R. J., SURYA, I.: **Cellulolytic activity of *Botrytis cinerea in vitro* and *in vivo*** · Zellulolytische Aktivität durch *Botrytis cinerea in vitro* and *in vivo* (m. dt. Zus.)
Phytopathol. Z. (Berlin) **106**, 97—103 (1983)

Protein fractions of ungerminated and germinated conidia, culture filtrates of 12-d-old cultures growing on cotton wool as the carbon source and from colonized tomato tissue, show cellulase activities (C_1, glucanase, cellobiase) and can break down native cellulose completely.

U. Stein (Geilweilerhof)

WOODHAM, R. C., KRAKE, L. R.: **Investigations on transmission of grapevine leafroll, yellow speckle and fleck diseases by dodder** · Untersuchungen zur Übertragung von Rebenblattroll, Gelbsprenkelung und Fleckenkrankheiten durch Seide (m. dt. Zus.)
Phytopathol. Z. (Berlin) **106**, 193—198 (1983)
Div. Hort. Res., CSIRO, Merbein, Vic., Australien

Leafroll was transmitted from an infected *Vitis vinifera* vine to different receptor vines including European and hybrid cvs. using *Cuscuta campestris* as a vector. Leafroll and fleck disease were transmitted to half of these plants, whereas an infection of herbaceous plants was not obtained.

R. Blaich (Geilweilerhof)

YIM, Y. J., KANG, S. J.: **Control of bird damage in the vineyard** · Verhütung von Vogelschäden im Weinberg (korean. m. engl. Zus.)
Res. Rept. Office Rural Develop. (Hort.) (Suweon) **24**, 102—105 (1982)
Hort. Exp. Sta., Suweon, Korea

The birds causing greater damage in vineyards are starlings, magpies and sparrows, the damage being greatest especially with starlings. Starlings move in large flocks of 40—50 birds, sparrows in small flocks and magpies individually. They attack the ripening fruits from sunrise to sunset without choosing the cvs. in vineyards around their roost. The bird damage differs considerably in different vineyards. The time of attacking fluctuation was shown by 2 peaks: 9—10 a.m. and 2—5 p.m. with starlings, but not with other birds. Various control measures for bird damage such as use of Methiocarb as a bird repellent, flashing aluminium tape, covering a cluster with a polyethylene film cap, and using mesh nets over the vines were compared with special regard to the behaviour of these birds. The best protection was to cover the vines with mesh nets, followed by covering a cluster with a polyethylene film cap.

R. Isoda (Hiroshima)

J. TECHNIK

AMIRANTE, P., MUGNOZZA, G. S.: **Anwendung von Kältetechniken in der Kellerwirtschaft** · Application of cold in winery implements (ital.)
Vignevini (Bologna) **9** (12), 29—37 (1982)
Ist. Meccan. Agrar., Univ. Bari, Italien

Die Anwendung der Kälte in der Kellerwirtschaft geht von der Mostklärung über die Gärführung bis zur Stabilisierung. Es werden die verschiedenen Methoden der Kälteanwendung mit Beschreibung der Maschinen, ihrer einzelnen Teile und deren Berechnung angeführt.

B. Weger (Bozen)

BÄCKER, G.: **Tangentialgebläse als Sprühaggregat zur Pflanzenschutzmittelapplikation im Weinbau** · Tangential fan for sprayhead to applicate in grapes (m. engl. Zus.)
Wein-Wiss. **37**, 340—349 (1982)
Inst. Tech., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

Querstromgebläse erzeugen eine rechteckige Parallel-Luftströmung, weshalb sie nicht nur in England seit langem im Strauchbeerenanbau, sondern neuerdings in Deutschland auch im Weinbau eingesetzt werden. — Im Institut für Technik, Geisenheim, konnte gezeigt werden, daß eine gleichmäßigere, in der Richtung einstellbare An- und Durchströmung der Rebenlaubwand möglich ist, wie dies bei Quellströmungen, die von Axiallüftern erzeugt werden, der Fall ist. Neben einer besseren Wirkstoffanlagerung und -verteilung an der Pflanze ist insbesondere eine Reduzierung der Drift und damit letztlich auch der Wirkstoffmengen möglich. *E. Moser* (Stuttgart)

BÄCKER, G.: **Verbesserung der Applikationstechnik. Erfahrungen mit Querstromgebläsen zur Erzeugung des Trägerluftstromes** · Improvement of the application technique. Experiences with cross flow fans for producing carrier airflow
Dt. Weinbau **38**, 470—474 (1983)
Inst. Tech., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

Querstromgebläse haben nach Untersuchungen des Instituts für Technik in Geisenheim gegenüber herkömmlichen Axialgebläsen, wie sie meist beim Sprühen chemischer Pflanzenbehandlungsmittel im Weinbau eingesetzt werden, entscheidende ökonomisch-ökologische Vorteile. Der als Rechteckstrahl austretende Trägerluftstrom trifft mit gleicher Geschwindigkeit, schräg nach hinten in einem Winkel von etwa 135° zur Fahrtrichtung, auf die gesamte Höhe der Reben-Laubwand. Die Luft durchdringt die Laubwand besser als der senkrecht auftreffende Luftstrahl bei der Quellströmung eines Axialgebläses mit Luftumlenkung. Sie verursacht durch die horizontale Strömung auch eine geringere Abdrift. Außerdem soll durch das schräg nach hinten ausströmende Luft-Brühegemisch der Arbeitsplatz weniger belastet werden. — Durch bessere Wirkstoffverteilung und -anlagerung soll bei gleichem biologischem Erfolg bei der *Botrytis*-Bekämpfung mit diesen Geräten der Wirkstoffaufwand um 25 % gesenkt werden können. Durch die geringe Drift soll dieses Verfahren auch mit kleinen Tropfen bedenkenlos eingesetzt werden können. *E. Moser* (Stuttgart)

BÄCKER, G., BRENDEL, G.: **Zeitgemäßer Pflanzenschutz durch Verfeinerung der Applikationstechnik** · Modern plant protection using an improved application technique
Rebe u. Wein **36**, 154—159 (1983)
FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

Auch bei Herabsetzung der Spritzbrühemenge können im allgemeinen gute Bekämpfungserfolge gegen *Oidium* und *Botrytis* der Rebe erzielt werden, wie Geisenheimer Vergleichsversuche mit verschiedenen Applikationsverfahren zeigen. Eine Reduzierung der Brühemenge von >700 l/ha (High-Volume) auf 50—200 l/ha (Low-Volume) und 5—20 l/ha (Very-Low-Volume) bei gleichzeitiger Tropfengrößenreduzierung bringt bei der *Oidium*-Bekämpfung eine Steigerung des Wirkungsgrades von etwa 90 auf 100 %, während er bei der Bekämpfung von *Botrytis* von 70 % auf 40 % fällt. Durch den Einsatz von Querstromgebläsen anstelle der üblichen Axialgebläse konnte die Wirkung infolge der günstigen Luftströmung weiter verbessert, d. h. auch der Wirkstoffaufwand gesenkt werden. Mit Rotationszerstäubern und VLV-Verfahren soll der Brüheaufwand und damit das Transportgewicht des Gerätes drastisch gesenkt werden können, weshalb dieses Verfahren besonders für Steillagen prädestiniert ist. Für eine abschließende Beurteilung der Ergebnisse sind weitere Versuche notwendig. *E. Moser* (Stuttgart)

FETTER, K.: **Qualitätsminderung des Weins durch Traubenvollernter?** · Lower wine quality by mechanical harvesting of grapes?
Weinwirtsch. (Neustadt/Weinstr.) **119**, 104—111 (1983)
LLVA f. Landwirtsch. Wein- Gartenbau Bad Kreuznach

During 1979—1982 mechanical harvesting with 2 types of harvesters was compared with hand picking. Results of product quality evaluation are presented: composition of grape mash, pomace, juice and wine; wine yield; filtration properties of young wines; hedonic value of wines. Practical problems with mechanical harvesters are discussed. *P. Dürr* (Wädenswil)

GERLACH, G., NERADT, F.: **Aktuelle Verfahren zur Flaschensterilisation unter Berücksichtigung der heutigen Umweltfragen** · Modern techniques of bottle sterilization considering environmental aspects
Weinwirtsch. (Neustadt/Weinstr.) **118**, 1165—1176 (1982)

Verschiedene Verfahren der Flaschensterilisation werden eingehend beschrieben. Der besondere Vorteil der Tauchbadsterilisatoren liegt in der Varianz der verschiedenen Desinfektionsmittel (SO_2, Peroxyessigsäure, Ozon). Gesetzliche Auflagen und die Technik der Entsorgung werden dargestellt.
L. Jakob (Neustadt)

GLEMANN, C.: **Horizontalpneumatik als neue Pressengeneration. Erfahrungen aus Test und Praxis** · Horizontal pneumatics as a new generation of presses. Experiences from test and practice
Dt. Weinbau **38**, 1003—1011 (1983)
LLVA f. Landwirtsch. Wein- Gartenbau, Oppenheim

Nach einem Rückblick zur Entwicklung des Pressenbaues seit 1950 werden Versuchsergebnisse (Vergleich Horizontalspindelkelter WHA 1250 und UP 1200) mitgeteilt. Die (Tank-)Presse UP 1200 liefert bessere Ergebnisse bei den Kriterien Abrieb der Trester, Trubgehalt, Gerbstoffgehalt (insbesondere bei verlängerter Preßzeit), Pressung kleiner Mengen, Maischebevorratung, Reinigung. Dagegen ist die WHA 1250 überlegen bei der Vorentsaftung und in der verkürzten Preßzeit. Einige weitere Tankpressen des Wettbewerbs werden vergleichend vorgestellt. *L. Jakob* (Neustadt)

HEINZEL, M., HAGEN, M., BOUSSER, CH.: **Neues Verfahren zur Desinfektion von Flaschenkorken** · A new method for disinfecting bottle corks
Weinwirtsch., Tech. (Neustadt/Weinstr.) **119**, 155—158 (1983)

Peracetic acid offers an advantage alternative to hypochlorite for the disinfection and bleaching of cork stoppers. Peracetic acid exists in concentrated and stabilized form in the commerical product "P 3-oxonia aktiv". A 4—5 % concentration of the product and an exposure of 1—2 h is sufficient for reliable disinfection of corks. Under these conditions in the disinfection bath the corks undergo bleaching which corresponds in its effectiveness to the older technique of discoloration with chlorine. The microbiological active agent decomposes when it comes in contact with organic material; producing acetic acid and O_2. The acetic acid is removed by redrying at 60 °C. With this new method the treatment of corks with active chlorine becomes unnecessary. *A. Rapp* (Geilweilerhof)

KERÉNYI, Z., WÜNSCHE, I.: **Filtrierversuche mit Filtermembranen hergestellt mittels Nuklearmethode** · Filtering experiments with filter membrane produced by nuclear methods (ungar. m. russ., dt., engl. Zus.)
Szölötermesztés Borászat **4** (4), 9—12 (1982)

Mittels Isotopenstrahlung hergestellte Filtermembrane (IF) wurden auf ihre Eignung für kellertechnische Zwecke untersucht. IF weisen eine nur 6—10 %ige Porosität auf, verglichen mit einer 80 %-igen Porosität der durch chemische Methoden hergestellten Membranfilterschichten mit Schwammstruktur. Die Filtrierleistung der IF mit einer Porengröße von 0,6 µm übertrifft die der Asbest-Zellulose-EK-Filterschichten (Typ W-Steril, Hersteller Filtrox) bzw. der SKS-Filterschichten (DDR-Produkt). Die IF sind jedoch nur zur Filtrierung vorfiltrierter Weine geeignet. Bei Filtrierung von stark mit Hefezellen kontaminierten Weinen sinkt die Filtrierleistung infolge Verstopfung der Poren stark ab. Mit IF wird bei vorfiltrierten Weinen allgemein eine wirkungsvollere Herabsetzung der Keimzahl erzielt als mit den angeführten Asbest-Zellulose-Filterschichten.
E. Minárik (Bratislava)

LÜDERS, W., GANZELMEIER, H.: **Untersuchungsergebnisse über die Anlagerung der Behandlungsflüssigkeit bei verschiedenen Pflanzenschutzgeräten in Rebsteillagen** · Results of studies on the deposition of spray mixture of different application techniques in slopes planted with grapevines (m. engl. Zus.)
Nachrichtenbl. Dt. Pflanzenschutzd. (Braunschweig) **35**, 70—75 (1983)
Landesanst. Pflanzensch., Stuttgart

Im Steilhang anwendbare Pflanzenschutzgeräte wurden auf Anlagerungsverhalten und *Botrytis*-Wirksamkeit untersucht. Neben der Spritzpistole wurden ein Kleinsprühgerät mit Radialgebläse, ein Großsprühgerät (Sprayer) mit Axialgebläse sowie ein Hubschrauber mit unterschiedlicher Düsenbestückung eingesetzt. Die praxisüblich gewählten Einsatzkenndaten und die Meßmethodik werden erläutert. Die ausführliche Darstellung der unterschiedlichen Belagswerte der Gerätevarianten für Blattober- und Blattunterseite wird durch eine Verteilungsbilanz für die Versuchsparzelle ergänzt. Der Bekämpfungserfolg der Varianten wird vergleichend angegeben.

W. Rühling (Geisenheim)

OSTARHILD, H.: **Möglichkeiten der Weiterentwicklung der Pflanzenschutztechnik im Weinbau** · Possibilities of advancement of plant protection techniques in viticulture
Dt. Weinbau **37**, 999—1000 (1982)

Technische Weiter- und Neuentwicklungen in der Applikation chemischer Pflanzenschutzmittel im Weinbau sind aus dringenden ökonomisch-ökologisch-biologischen Forderungen heraus in den letzten Jahren verstärkt zu beobachten. Industrie, Beratung und Praxis bemühen sich um Ausschöpfung der heutigen technischen Möglichkeiten. Dies betrifft insbesondere die Spritzmittel-Einspeisvorrichtung (Schutz des Anwenders vor Kontamination mit Wirkstoffen), die Rücksaugeinrichtung gegen Nachtropfen und schließlich einen zweiten Düsenkranz oder auch Mehrfachdüsen zur Ausbringung verschiedener, vegetations- und schädlingsabhängiger Aufwandmengen. Elektromotorische Gerätefernbedienungen machen dichte Schlepperkabinen möglich. Dosierelektronik-Automaten vereinfachen die Geräteeinstellung und die fahrgeschwindigkeitsabhängige Dosierung. — Technische Neuentwicklungen wie Rotationszerstäuber zur Vereinheitlichung der Tropfengröße bei Herabsetzung der Flüssigkeitsmenge, Querstromgebläse zur besseren Luftführung sowie das Zweiphasen-Spritzen, bei dem 2 Flüssigkeitssysteme in einem Arbeitsgang bestimmte Rebenteile, z. B. Traubenzone und übrige Laubwand behandeln, führen zu Einsparungen von Wirkstoffmittel und Arbeitszeit. — Schließlich dienen zahlreiche Gerätekontrollstationen der schnellen Überprüfung von Pflanzenschutzgeräten in der Praxis.

E. Moser (Stuttgart)

RÜHLE, H.: **Mechanisierung der Laubarbeit** · Mechanization of shoot thinning, topping and tying
Bad. Winzer (4), 185—190 (1983)

This article supplements the information provided in a previous payer by SCHNEKENBURGER (cf. Vitis **22**, 285, 1983). It describes and illustrates in some detail the machines used to top and tie the shoots to maintain an upright foliage-canopy and discusses the respective advantages of carrying out these jobs by hand or by machine under the conditions of the vineyards of Baden (West Germany).

P. May (Adelaide and Dijon)

RÜHLING, W.: **Ein endgültiger Durchbruch in der Erntemechanisierung** · The final break-through in mechanical harvesting
Weinwirtsch. (Neustadt/Weinstr.) **119**, 404—408 (1983)
Inst. Tech., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

About 300 mechanical grape harvesting machines operated in German vineyards in 1982. After 6 years of machine usage the effectiveness of this type of harvesting can no longer be doubted. The costs of hand or machine harvesting are comparable in properly adapted vineyards when tractor-drawn machines are used annually on 20 ha and self-powered machines on 32 ha. The quality of the wine obtained after hand or machine harvest is similar. The efficiency of the machine operation is affected by (a) the cv. (in Riesling 75 % bunches and 3 % juice, in Ruländer or Morio Muskat 20 % bunches and 30 % juice), (b) the design of the transport mechanism of the machine, (c) the maturity of the grapes (best between 170 and 210 g/l sugars) and (d) the extent of *Botrytis* infection. [Cf. also abstract to LAWALL, M.: Vitis **22**, 179, 1983.]

P. May (Adelaide and Dijon)

SERRANO, M., RIBÉREAU-GAYON, P.: **Filtration des vins sur plaques au moment de la mise en bouteilles** · Filtration of wine with filter plates before bottling
Rev. Franç. Oenol. (Paris) **23** (89), 57—63 (1983)
Inst. Oenol., Univ. Bordeaux II, Talence, Frankreich

Since 1980 plates of asbestos for filtrating wine in France is no longer allowed. Therefore pre-filtration with kieselgur and then filtration with filter plates of cellulose are recommended. A test pro-

gram has given the best conditions for the practice regarding sterilization and re-utilization of the cellulose filters, and the quantity and quality of the filtrated wines. *H. Eschnauer* (Ingelheim)

SCHNEKENBURGER, F.: **Maschinen- oder Handheften — ein betriebswirtschaftlicher Vergleich** · Tying of shoots by machine or by hand — a comparison of their economics
Dt. Weinbau **38**, 686—694 (1983)
Staatl. Weinbauinst., Freiburg/Br.

The practices of removing unwanted shoots and leaves and of topping, positioning and tying the remaining shoots, as done in German vineyards, are described. These jobs need to be done on time and still require on average about 100 h · ha^{-1} of hand labour each year, despite considerable savings in time due to wider vine spacing and placement of pairs of foliage-wires. In the Mosel, about 400 h and in Baden-Württemberg about 160—170 h are needed. Tables provide detailed information on labour demands. The possibilities and economics of shoot tying by machine are described. Cost parity with hand labour is achieved when machine usage extends over 3—6 ha/annum.
P. May (Adelaide and Dijon)

UHL, W.: **Reduzierung der Brüheaufwandmenge im weinbaulichen Pflanzenschutz aus gerätetechnischer Sicht** · Reduction of the spray amount in vine protection from technical view
Dt. Weinbau **37**, 1001—1004 (1982)
Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

In mehrjährigen Feldversuchen der Bayerischen Landesanstalt für Weinbau und Gartenbau Veitshöchheim wurde festgestellt, daß es mit serienmäßigen Sprühgeräten durchaus möglich ist, durch Auswechseln der Hohlkegel-Düsen die Brüheaufwandmenge von 800 l/ha (HV-Verfahren) auf 100 l/ha (LV-Verfahren) zu reduzieren. Dabei können der Druck, die Fahrgeschwindigkeit und die Gebläsedrehzahl bzw. der -luftstrom beibehalten werden. Geräte-Zusatzausrüstungen, wie beispielsweise Zentralabschaltung und Rücksaugeinrichtungen, verbessern die Funktion und Bedienbarkeit der Geräte. — In der erzielten quantitativen und qualitativen Wirkstoffanlagerung (Masse und Belagsstruktur) wie auch in der Bodendrift unterscheiden sich HV- und LV-Verfahren kaum, so daß gleiche biologische Wirksamkeit erwartet werden kann. *E. Moser* (Stuttgart)

UHL, W.: **Neues Mechanisierungsverfahren zur Stroheinbringung in Seilzuglagen** · A new mechanizing technique for distributing straw in vineyards on steep slopes
Dt. Weinbau **38**, 489—492 (1983)
Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

Die Einbringung von Stroh in Seilzuglagen wird bisher durch einen hohen Arbeitsaufwand (ca. 45 AKh/ha) behindert. Beschrieben wird ein Schneid- und Fördergerät, das vom Schlepper gezogen und angetrieben wird. Ein in der Schnittlänge verstellbarer Strohhäcksler wurde mit einer hydraulisch schwenkbaren Förderleitung (Gebläse) zur Anpassung an die Geländegegebenheiten ausgestattet. Die Reichweite beträgt etwa 25 m, so daß bei beidseitigem Wegeanschluß Hangflächen mit Reihenlängen bis 50 m abgedeckt werden können. Bei einer Strohmenge von 50 dt/ha beträgt der Arbeitsaufwand für das Einbringen und Verteilen etwa 24 AKh/ha, wozu 4 AK benötigt werden. Die Untersuchungen wurden mit Hochdruckballen durchgeführt, die Beschickung mit losem Stroh oder Rundballen ist ebenfalls denkbar. *W. Rühling* (Geisenheim)

VAGNY, P., CHALER, G., VERNET, C.: **Le développement de la mécanisation des vendanges en France** · The development of harvest mechanization in France
Vignes et Vins (318), 12—17 (1983) · Progr. Agric. Vitic. (Montpellier) **100** (10), 278—283 (1983)
Inst. Tech. Vigne Vin, Montpellier, Frankreich

The rapid rise in the numbers of mechanical grape harvesters in France is documented in graphic and tabular form. The numbers of machines rose from 1 in 1971 to 3765 in 1982. Their geographical distribution, the ratio of self-powered and tractor-drawn or -mounted machines and the names and addresses of the 17 manufacturers that supply them are noted. It is estimated that 21.4 % of the French grape crop was harvested by machine in 1982. *P. May* (Adelaide and Dijon)

K. BETRIEBSWIRTSCHAFT

ANONYM: **BML. Daten-Analysen. Ertragslage Garten- und Weinbau 1981/82. 2. Weinbau** · BML. Data analyses. Yield structure in horticulture and viticulture 1981/1982. II. Viticulture
Hrsg. Bundesmin. Ernähr. Landwirtsch. Forsten 51—77 (1983)

Es wird über die Weinbauerhebung 1979/80 berichtet, die im Rahmen der Landwirtschaftszählung 1979 durchgeführt wurde. Die Ergebnisse sollen vor allem als Grundlage für agrarpolitische Entscheidungen dienen. Ein Teilgebiet, die Erhebung der Rebflächen, soll das bisherige Weinbaukataster ablösen. Der Abschnitt Strukturdaten gibt einen Überblick über die Entwicklung der Betriebe mit Weinbau, getrennt nach Betriebsarten, Weinbaugebieten und Standarddeckungsbeiträgen. Die Erfassung von Anbau und Ernte gibt Aufschluß über die Entwicklung der Rebsorten, Rebflächen, Erntemengen, Qualitätsanteile und Preise seit 1964. Diese Werte werden durch die Außenhandelsdaten von 1964—1982 ergänzt und daraus eine Versorgungsbilanz für Wein in der Bundesrepublik erstellt, sowie eine Übersicht über die Weinbestände und Lagerbehälter. Nach der Darstellung der Preis- und Lohnentwicklung und einer kurzen Erläuterung des neuen EG-Marktsystems erfolgt die Überleitung zur Einkommenssituation der Weinbaubetriebe 1981/82 im Vergleich zu den Vorjahren. Die Aussagen zur Einkommensentwicklung werden durch die Buchführungsergebnisse der Weinbaubetriebe, getrennt nach Weinbauregionen und Vermarktungsformen, ergänzt. Der Bericht schließt mit einer kurzen Vorschätzung für 1982/83. *W. Back* (Neustadt)

BERGER, A.: **La commercialisation du vin en France. Le négoce face à ses partenaires au sein de la filière viti-vinicole** · Der Weinhandel in Frankreich. Der Großhandel im Verhältnis zu den selbstvermarktenden Winzern · The wine commercialization in France. The wholesale trade facing the self-marketing viticultural farms
Bull. OIV **56**, 279—289 (1983)
Sta. Econ. Soc. Rurales (INRA), Paris, Frankreich

Der Weinhandel ist in den letzten Jahren von der allgemeinen wirtschaftlichen Krise sehr betroffen worden. Bisher hatte er den Vorzug, den eigenen Wein selbst zu vermarkten. Seit 1981 verkaufen die selbstvermarktenden Winzer in der Champagne ebensoviel Wein wie der Handel. Schlimmer ist noch, daß man das Produkt „französischer Wein" in Frage stellt. Frankreich hat das Qualitätsmonopol auf internationaler Ehene verloren. Die konkurrierenden Länder produzieren Wein von unbestreitbarer Qualität. Es blieb Frankreich nur das zu bewahren, was seine Berühmtheit begründete: altersreife Weine. Trotz zunehmendem Wert des Weines wird die Finanzierung von Lagerung und Reifung schwieriger und für zahlreiche Händler und Erzeuger unmöglich. Finanzgruppen interessieren sich immer weniger für den Weinsektor. Etliche hahen sich wegen der Finanzierungsansprüche und dem nötigen Spezialwissen zurückgezogen.
F. Schnekenburger (Freiburg)

RIEDER, W.: **Wirtschaftliche Betrachtungen wassersparender Verfahren im weinbaulichen Pflanzenschutz** · Economical considerations of water-saving procedures in viticultural plant protection
Dt. Weinbau **38**, 486—488 (1983)
Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

Verf. stellt anhand von Arbeitszeitstudien und Kostenkalkulation die ökonomischen Unterschiede zweier mit unterschiedlicher Flüssigkeitsmenge (MV = medium volume, 800 l/ha; VLV = very low volume, 80 l/ha) arbeitender Pflanzenschutzverfahren im Weinbau gegenüber. Unter den vorgegebenen Bedingungen beträgt die Gesamtarbeitszeit/ha beim MV-Verfahren 3,52 AKh bzw. 2,07 Sh gegenüber 1,84 AKh bzw. 1,57 Sh beim VLV-Verfahren. Bei gleichen Spritzzeiten sind vor allem Unterschiede bei den Rüst-, Weg- und Füll-, aber auch Wartezeiten gegeben. Bedingt durch den geringeren AKh-Aufwand beim VLV-Verfahren ist dessen Schlagkraft mit 0,54 ha/h gegenüber 0,46 ha/h beim MV-Verfahren verbessert. Bezüglich der Verfahrenskosten schneidet das VLV-Verfahren mit 91,10 DM/ha gegenüber 115,40 DM/ha beim MV-Verfahren ebenfalls günstiger ab. Hinzu kommt noch die eventuelle Behandlungsmitteleinsparung. Unter der Voraussetzung einer gleichen biologischen Wirksamkeit wird das VLV-Verfahren als günstiger herausgestellt.
W. Hofäcker (Niederhausen)

L. ÖNOLOGIE

AMATI, A., AMATI, ANDREA, GALASSI, S., RIPONI, C.: **Versuche der Rotweinbereitung durch Trester-Mazeration mit Hilfe einer kontinuierlichen Anlage** · Trials on red wine production by marc mazeration using an automatic device (ital. m. franz. Zus.)
Vignevini (Bologna) **9** (11), 31—36 (1982)
Cent. Ric. Vitic. Enol., Univ. Stud., Bologna, Italien

Die mit Trauben der Rebsorte Sangiovese di Romagna unter Anwendung des rotierenden Gärbehälters Garolle SVR durchgeführten Versuche ergeben wichtige Erkentnisse über die Gärführung und über die Vorgänge während Gärung und Mazeration. Unmittelbar nach der Einmaischung werden die üblichen Gehalte an Polyphenolen, Catechinen, Anthocyanen und Leucoanthocyanen festgestellt. Die letztgenannten nehmen in der nächsten Phase, infolge Oxidation um bis zu 80 % ab. In den nachfolgenden 24 h wird eine Zunahme der Polyphenole beobachtet. Während der Gärung nehmen Anthocyane und Catechine ab, während die Leucoanthocyane wieder zunehmen. Je nach Mazerationsdauer nehmen die Polyphenole zu, was an Art und Intensität der Farbe zu erkennen ist. Um diese Polyphenole in Lösung zu halten, soll das Gärgut nur selten und kurz umgewälzt werden. Auf die Verkürzung der Gärzeit durch Anwendung von Reinzuchthefen sowie auf den Zusatz von mit leichtem Preßdruck gewonnenen Weinen zur Intensivierung der Farbe wird hingewiesen.
B. Weger (Bozen)

BACH, H. P.: **Ergebnisse von Untersuchungen über den Einfluß einer Begasung von Most — vor und während der alkoholischen Gärung — auf die Gehalte gewisser Weininhaltsstoffe** · Results of examinations about the influence of the gas treatment of must — before and during the fermentation — on the contents of certain substances in wine (m. engl., franz. Zus.)
Mitt. Klosterneuburg **32**, 247—270 (1982)
LLVA f. Wein- Gartenbau Landwirtsch., Trier

In order to determine the influence of air on a must during fermentation, a controlled experiment with a Müller-Thurgau must was undertaken. This must was subjected to flows of N_2, air, or O_2 at varying amounts prior to, or prior to and during, fermentation. The influence of the gas treatments on redox potential, pH, O_2 content, sugar, acetaldehyde, total SO_2, alcohol, total phenols, acidity, lactic acid, malic acid, tartaric acid, volatile acidity and CO_2 contents was assessed. An excessive supply of O_2 was found to be detrimental with the unclarified must, but on the other hand no advantage was found under strictly reductive conditions. The use of a fermentation bung is of advantage in reducing the exposure of the must to excessive O_2. *D. J. Spedding* (Auckland)

BERTUCCIOLI, M.: **Direct gas chromatographic determination of some volatile compounds in wine** · Direkte gaschromatographische Bestimmung einiger flüchtiger Komponenten in Wein (ital., engl.)
Vini d'Italia **24**, 149—156 (1982)
Ist. Ind. Agrar., Fac. Agrar., Univ. Perugia, Italien

A method was devised utilizing gas chromatography for quantitative analysis of some volatile components in wines: Acetaldehyde, methanol, n-propanol, 2-methyl-propanol-1, 2-methylbutanol-1, 3-methyl-butanol-1, 2,3-butandiol, glycerol, ethyl acetate, ethyl lactate and acetoin. The compounds were analyzed for direct injection of sample into gas chromatographic column (packed column: 2m Carbopack C + 0.2 % Carbowax 1500; 80—100 mesh). Application of this method was carried out to estimate the components of different white and red Italian wines. *A. Rapp* (Geilweilerhof)

CARNACINI, A., LERCKER, G., RIPONI, C., CAPELLA, P., AMATI, A.: **Volatile components of wine. Note 5. The acid fraction** · Aromastoffe in Wein. 5. Mitteilung. Die Säurefraktion (ital., engl.)
Vini d'Italia **24**, 106—112 (1982)
Ist. Ind. Agrar., Univ. Bologna, Italien

Organic acids extracted with pentane-methylene chloride (7 : 3) from a vintage "Albana" wine were analysed by TLC and GC/MS. A range of 80 saturated and unsaturated acids from C_4 to C_{24} was

identified, of which 5 had not been previously reported; no quantitative data are given. Tentative identification of a group of 2-hydroxy-3-keto-compounds was also indicated.

T. C. Somers (Adelaide)

CÀSTINO, M., UBIGLI, M.: **Some remarks about the aid-pressing material "Drenopor" in white wine-making** · Einige Anmerkungen über die Preßhilfe „Drenopor" bei der Weißweinbereitung (ital. m. engl. Zus.)
Vignevini (Bologna) **10** (4), 47—50 (1983)
Ist. Sper. Enol., Asti, Italien

Use and advantage of the pressing aid "Drenopor" for pressing 4 different white cvs. are described. A higher yield of about 2—3 % of free run and first pressing must is received. The wines have lower content of flavanic phenols and acid colloides, especially pectins, they are more stable and can better be filtered. *H. Eschnauer* (Ingelheim)

CÀSTINO, M., UBIGLI, M., STEFANO, R. DI: **Die Reifung von Rotweinen in Holzfässern** · Maturation of red wines in wooden casks (ital. m. engl. Zus.)
Vignevini (Bologna) **10** (1—2), 39—48 (1983)
Ist. Sper. Enol., Asti, Italien

Verschiedene Verordnungen über die Qualitätsweine b.A. Italiens schreiben eine Reifung in Holzfässern vor, in denen sie bekanntlich schneller erfolgt als in Stahlbehältern. Je nach Weinart kann dies positiv oder negativ bewertet werden. Die Versuche ergeben, daß die Polymerisierung der Tannine beschleunigt wird. Die vom Holz abgegebenen Polyphenole sind fast ausschließlich dem Typ „nicht flavonoid" zuzurechnen. Die sensorische Beurteilung der gereiften Weine geht erheblich auseinander, je nach dem persönlichen Geschmack der Sachverständigen. *B. Weger* (Bozen)

CLÎMACO, M. C.: **Study on the flavour of five cultivars of the western region** · Untersuchung der Aromastoffe von 5 Rebsorten im westlichen Anbaugebiet [Portugals] (port. m. engl., franz. Zus.)
Ciênc. Téc. Vitivinic. (Dois Portos) **1** (1), 29—35 (1982)
Esta. Vitivinic. Nacl., Dois Portos, Portugal

Various solvents were used to extract aroma materials from 5 western Portugese cvs., Fernão Pires, Vital, Alicante Branco, Santarém and Tinta Miúda. Aroma component separation was by GC on SP 1000 and FFAP columns, temperature programmed. The method of compound identification is not given, but 13 esters, 5 alcohols and 2 terpenes are reported. Wines but not musts contained esters of acids larger than C-6, ethyl lactate, diethyl succinate and hexyl and 2-phenethyl acetates. Fernão Pires lacked butyl acetate and alpha-terpineol; Santarém had no ethyl 2-methyl-butyrate.

A. D. Webb (Davis)

DONKÓ, E.: **Die Veränderung des Gleichgewichtes von Farbstoffen während der Gärung** · Changing of balance of colouring matters during fermentation (ungar. m. russ., dt., engl. Zus.)
Szölötermesztés Borászat (Kecskemét) **5** (1), 8—14 (1983)

Durch Wärmebehandlung gelangen 65—70 % des Farbstoffgehaltes (F) der Schale in den Most. Während der Gärung wird der F im Durchschnitt um 30 %, während einer 1jährigen Weinbehandlung (Schönung, Filtrierung usw.) um weitere 50 % herabgesetzt. Verf. untersuchte Veränderungen des F, die sich in der Gärphase bei verschiedenen Temperaturen ergeben. Der Ionisierungsgrad (I) der Anthocyane hängt während der Maischegärung weitgehend von der Maischetemperatur ab. Höhere Temperaturen (60—70 °C) führen im Gegensatz zu niedrigeren (50 °C) zu qualitativen Veränderungen in der Zusammensetzung der Moste. Verschiedene Faktoren, die den I der Anthocyane beeinflussen (Äthanol, SO_2, Gärgeschwindigkeit etc.) werden angeführt. Die Notwendigkeit weiterer Untersuchungen wird unterstrichen. *E. Minárik* (Bratislava)

DU PLESSIS, C. S.: **Influence de la température d'élaboration et de conservation sur les caractéristiques physico-chimiques et organoleptiques des vins** · The influence of

temperature, during production and storage, on the physicochemical and organoleptic characteristics of wine
Bull. OIV **56**, 104—115 (1983)
Oenol. Viticult. Res. Inst., Stellenbosch, RSA

The effect of temperature during vinification on the quality and composition of wine was studied: it is proposed that temperature is a highly influential determinant of the composition and quality of wine. A wide variety of wines, red and white, were studied; the results with respect to polyphenol, anthocyanin, volatile acidity and acetate contents are given. In addition, Author describes the role of must composition on the influence of temperature variation during vinification.
D. W. Green (Winona)

ESTRELLA, M. I., HERNANDEZ, M. T., DIEZ, C.: **Development of phenolic substances with low molecular weight during the maturation of sherries** · Entwicklung phenolischer Substanzen mit niedrigem Molekulargewicht während der Reifung von Sherries (ital. m. franz. Zus.)
Vignevini (Bologna) **10** (1—2), 33—38 (1983)
Inst. Ferment. Ind., Madrid, Spanien

The aging of the wines of the quality "finos" of Jerez (Spain) is a biological process. A great number of acids, aldehydes and alcohols were determined and controlled during this aging process. The results were compared with another type of wine "oloroso". The main difference in the 2 types were found in the concentration of the phenols. The most chromatographic methods were described in detail. 27 literature titles.
H. Eschnauer (Ingelheim)

ETHIRAJ, S., SURESH, E. R.: **The proline content of some experimental wines made in India** · Der Prolingehalt einiger Versuchsweine aus Indien
Amer. J. Enol. Viticult. **33**, 231—232 (1982)
Indian Inst. Hort. Res., Bangalore, Indien

Proline content in experimental wines from 16 grape cvs. ranged from 16 to 1000 mg/l, the average values being generally lower than those reported from other countries. Significant differences in proline content were observed between cvs. but no consistent differences were noted between proline contents of white and red wines.
T. C. Somers (Adelaide)

FERENCZI, S., KÁLLAY, M., BÁRDI, G.: **Evaluation methods for proper application of enocyanine products** · Bewertungsmethoden für exakte Anwendung von Anthocyankonzentraten (ital. m. engl. Zus.)
Vignevini (Bologna) **10** (1—2), 21—25 (1983)
Borgazdaságok Kisérl. Minöségellenörzö Lab., Budapest, Ungarn

A practical method for calculating the quantity of anthocyanin concentrate necessary to deepen the color of color-deficient red wines is given. Color intensity is taken as the sum of the absorptions at 420 and 520 nanometers. Knowing the color intensity and the fraction of anthocyans polymerized of the concentrate, and the pH and free SO_2 of the wine to be treated, equations are derived to correct the value of concentrate obtained by simple proportions for changes caused by pH, free SO_2, and fraction of anthocyan polymerized.
A. D. Webb (Davis)

FLAK, W., PLUHAR, G.: **Ergebnisse von Untersuchungen über die quantitative Bestimmung der Säurehauptkomponenten von Traubenweinen unterschiedlicher Herkunft, Sorte und Reife mit einer modifizierten hochdruckflüssigkeitschromatographischen Methode** · Results of examinations concerning the quantitative determination of the main acid components of grape wines of different origin, variety, and maturity with a modified high pressure-liquid-chromatographical method (m. engl., franz. Zus.)
Mitt. Klosterneuburg **33**, 60—68 (1983)
Landwirtsch.-Chem. BVA, Wien, Österreich

The HPLC method of SCHNEYDER and FLAK (Mitt. Klosterneuburg **31**, 57—61, 1981, Vitis **20**, 275—276, 1981) was modified using a radially compressed C_{18} reverse phase column and an increase in the pH

of the mobile phase. This system resulted in a shorter analysis time compared to the previous method and also prevented broadening of the internal standard, glutaric acid. The acids (malic, lactic, and acetic acid) usually associated with the bacterial transformation, such as malo-lactic conversion and acetic acid spoilage, are responsible for the majority of the variation of the acids in the wines. The data show the typical acid patterns obtained for red and white wines. The range of the acids determined (tartaric, malic, lactic, acetic, and succinic acids) are shown by bar graphs or histograms. *L. Mattick* (Geneva)

HEIMANN, W., RAPP, A., VÖLTER, I., KNIPSER, W.: **Beitrag zur Entstehung des Korktons in Wein** · Contribution on the "corked" note in wines (m. engl., franz. Zus.)
Dt. Lebensmittel-Rundsch. (Stuttgart) **79**, 103—107 (1983)
BFA f. Rebenzücht. Geilweilerhof, Siebeldingen

Penicilium roquefortii, growing on a sterile medium of ground cork and Czapek solution + $(NH_4)_2SO_4$, produced a number of compounds with musty, moldy, and "corky" wine odors. Strongest defective wine "corked" odors were associated with a group of sesquiterpenes. Media were extracted with Freon 11, partioned on silica gel columns, and analyzed by GC-MS and by GC-sniff analysis. Sterile cork wood extract did not contain sesquiterpenses; that inoculated with *P. roquefortii* did. Commercial corks, inoculated with *P. roquefortii* and stored 3 months, yielded "corked" defective wines when tasted one week after filling. 2,4,6-Trichloroanisole has a GC retention time differing from those of the sesquiterpenes with the typical "corked" odor defect. *A. D. Webb* (Davis)

KRENIS, G. A., KERDIVARENKO, M. A., GODOROZHA, P. E., GURITSANU, A. D.: **Application of little-swelling bentonite for the fining of wine materials** · Verwendung von schwach quellendem Bentonit für die Weinschönung (russ.)
Izv. Vyssh. Uchebn. Zaved., Pishch. Tekhnol. (Krasnodar) (4), 37—40 (1982)

Physico-chemical and organoleptic properties of wine after the application of little-swelling bentonite for the fining were studied. The treatment decreased titratable acidity, Fe, total N, protein, phenolic compounds and extract, while both total alcohol and sugar were not affected.
S. A. Abou-Donia (Alexandria)

MAYER, K., PAUSE, G.: **Histamingehalte in 1981er Ostschweizer Weinen** · Histamine contents in 1981 wines of eastern Switzerland
Schweiz. Z. Obst- Weinbau **118**, 723—727 (1982)
Eidgenöss. FA f. Obst- Wein- Gartenbau, Wädenswil, Schweiz

Contrary to former results (1968 and 1971), new studies furnished a better picture: white wines contained 0.4 mg/l, red wines 0.9 mg histamine/l (mean values). The highest values were 8 mg/l (white wine), and 6 mg/l (red wine). 70 % of the examined wines did not contain any histamine. This result is traced back to an improved technique of malo-lactic fermentation, and to the favourable influence of the year 1981 (the grapes had been healthy during the vintage). Finally, there is pointed to a certain cellar specifity: some wineries produce wines which always contain a certain amount of histamine. *R. Woller* (Trier)

MEIER, W., BAYER, E.: **Untersuchungen über die Bentonitbehandlung von Mosten und Weinen** · Examination about the bentonite treatment of musts and wines (m. engl., franz. Zus.)
Mitt. Klosterneuburg **33**, 75—77 (1983)
HBLuVA f. Wein- Obstbau, Klosterneuburg, Österreich

MOST-Rein (a granulated bentonite from Montmorillonit and impregnated with charcoal) and a standard bentonite were examined with musts of 5 cvs. of the 1981 vintage. A comparison of wines, treated with bentonite when young, showed that the time of the first racking is best for this treatment. Bentonite had no effect on the Na^+- and Ca^{2+}-content of musts and gave no better sensoric evaluation of the resulting wines. *O. Endres* (Speyer)

ODARCHENKO, V. YA., TOLMACHEV, V. A., GADZHIEV, S. G., VASHCHENKO, L. A.: **Influence of separate fermentation of must and pulp on quality of red table wines** · Einfluß der

getrennten Gärung von Most und Fruchtfleisch auf die Qualität von roten Tafelweinen (rum.)
Izv. Vyssh. Uchebn. Zaved., Pishch. Tekhnol. (Krasnodar) (3), 120—121 (1982)

Red table wines were prepared using Cabernet and Matrasa grapes by separate fermentation of must and pulp. This method enhanced the wine quality more than the mixed fermentation of must and pulp, increasing pigment material, colouring intensity and taste panel.
S. A. Abou-Donia (Alexandria)

ORESHKINA, A. E., NOVIKOVA, V. N., GOROSHKOVA, A. T.: **Oxidation of ascorbic acid in wine** · Oxidation von Ascorbinsäure in Wein (russ. m. engl. Zus.)
Prikl. Biokhim. Mikrobiol. (Moskau) **19**, 286—291 (1983)
Vses. Zaochn. Inst. Pishch. Prom., Moskau, UdSSR

Dynamic and mechanism of ascorbic acid oxidation in wine and in a model alocoholic (11 % ethanol) medium was studied. The ascorbic acid oxidation rate — higher in the model alcoholic medium than in the wine — increased by increasing temperature, pH and O_2 content. The Fe cations highly catalyzed the oxidation process of ascorbic acid. Sulfuration of wine delayed ascorbic acid oxidation as a result of H_2O_2 binding by formed SO_2. The gradual increase of ascorbic acid slightly accelerated its oxidation rate. *S. A. Abou-Donia* (Alexandria)

PAPA, T., SCOLLARY, G.: **The metal content of wine: effect of sample treatment** · Der Metallgehalt von Wein: Beeinflussung durch Probenvorbereitung
Austral. Grapegrower Winemaker (232), 52; 54—55 (1983)

The paper compares 4 different methods of sample treatment for the analysis of Fe, Cu, Mn and Zn contents of wines by atomic absorption spectroscopy. 5 cask wine samples were directly aspirated into the flame, first calibrated by addition of a standard, evaporated to about half the volume or wet digested using either H_2SO_4 and H_2O_2 or H_2SO_4, nitric acid and H_2O_2. Differing results are discussed but no recommendation is given. *R. Eschenbruch* (Te Kauwhata)

PIRACCI, A.: **The importance of acetaldehyde and ketonic acids with regard to reduction of the efficacy of SO_2 in white Lazio wines** · Die Bedeutung von Acetaldehyd und Ketosäuren auf die Wirkungsabnahme von Schwefeldioxid in Weißweinen aus Latium (ital.)
Vini d'Italia **24** (137), 98—104 (1982)
Ist. Sper. Enol., Asti, Italien

In a number of recently vinificated Lazio wines (Italy), parallel to them in a second group of such wines 10 months after vinification, the molecular SO_2 and the SO_2 bound to acetaldehyde, pyruvic acid and ketoglutaric acid, were determined. The results indicate that the efficacy of total SO_2, besides the concentration of H^+ ions, above all is influenced by carbonyl compounds. Author suggests steps which reduce these substances, without increasing the pH: use of selected yeasts, addition of thiamine before fermentation, and, if there had been a malolactic fermentation, a re-acidification. *R. Woller* (Trier)

POSTEL, W., MEIER, B.: **Verhalten von 2-Acetolactat, 2-Acetohydroxybutyrat, Diacetyl, 2,3-Pentandion and Acetoin während der Traubenmostgärung** · The behaviour of 2-acetolactate, 2-acetohydroxybutyrate, diacetyl, 2,3-pentanedione and acetoin during the fermentation of grape must
Z. Lebensm.-Untersuch. u. -Forsch. **176**, 113—115 (1983)
Inst. Lebensmitteltechnol. Analyt. Chem., Univ. München, Freising-Weihenstephan

The vicinal diketones diacetyl and 2,3-pentanedione, their precursors 2-acetolactate and 2-acetohydroxybutyrate, as well as acetoin, are not detectable in unfermented grape must. These substances are formed during yeast fermentation in different concentrations. They reach a maximum and decrease towards the end of the fermentation to a small portion of the former peak values. Aeration during the initial phase of fermentation has a great influence on the concentrations of the different substances as well as on the proportions. *A. Rapp* (Geilweilerhof)

SANCTIS, P. DE: **Blankfiltration der Weine mit Asbest-Ersatzstoffen** · Wine brilliance with filtration using precoat filters instead of asbestos (ital. m. engl. Zus.)
Ind. Bevande (Torino) **11**, 341—344 (1982)

In 2 Versuchen wurde der Filter einmal mit Asbest und zum anderen mal mit Fibrox 30 Special Food (Baumwolle, Cellulose, Perlite und Kieselgur) angeschwemmt. Die weitere Filtration erfolgte unter kontinuierlicher Zugabe von Kieselgur. Die Klarheit des filtrierten Weines scheint mit Fibrox leicht besser zu sein. Die Filterleistung weist eine deutliche Überlegenheit von Fibrox auf: nach 3,3 h werden mit Asbest 250 hl erreicht (Druckanstieg auf 6 Atm.), mit Fibrox 500 hl (Druckanstieg auf 3,5 Atm.), in anderen Worten 33,3 hl/m² bzw. 66,6 hl/m². Auch die Anschwemmzeit beträgt bei Fibrox ca. die Hälfte. *B. Weger* (Bozen)

SHIMIZU, J., WATANABE, M.: **Investigation of volatile components in wines from Koshu and Zenkoji grapes** · Untersuchungen über die Aromastoffzusammensetzung bei Weinen der Rebsorten Koshu und Zenkoji
Agricult. Biol. Chem. (Tokyo) **46**, 2353—2355 (1982)

Authors have attempted to determine the volatile components of wines made from Koshu and Zenkoji grapes, which are native Japanese cvs. Analysis of the volatile components was done by using coupled gas chromatography-mass spectrometry with a capillary column (30 m glass capillary coated with FFAP). The fractions investigated in this experiment contained more or less the combined neutral, acidic and phenolic components of the total volatiles. The aromagrams of the 2 wine fractions are very similar to one another. It was possible to identify 29 volatile compounds: 4 nitrogenous compunds, 5 hydrocarbonyl, 4 carbonyl compunds (aceton, 2-methyl-propanal), 3 phenols, 2-thiofurans and 11 alcohols. 2-methyl-2-butane and 1-benzazine (quinoline) were found in Koshu but not in Zenkoji wine. 6-tert. butyl-o-cresol, n-2-methylpropylacetamide and 2-(1-butyl)-5-(2-methylpropyl)-thiofuran were determined in Zenkoji but not in Koshu wine.
A. Rapp (Geilweilerhof)

SINGLETON, V. L., TROUSDALE, E.: **White wine phenolics: Varietal and processing differences as shown by HPLC** · Phenole in Weißweinen: Nachweis von sorten- und verfahrensbedingten Unterschieden mittels HPLC
Amer. J. Enol. Viticult. **34**, 27—34 (1983)
Dept. Viticult. Enol., Univ. California, Davis, Calif., USA

HPLC on C_8 and C_{18} reversed phase columns is used to quantify the presence of gallic, caffeoyl and p-coumaroyl tartaric acids and epicatechin, catechin, astilbin and engeletin in Chenin blanc, French Colombard, Semillon and Thompson Seedless skin extracts and free-run and pomace contact wines. The caffeoyl and p-coumaroyl tartrate concentrations were similar in clarified must wine and skin extracts, whereas the other compounds were found in much greater concentrations in the skin extracts, except for gallic acid which was found in much greater concentrations in the wine fermented on the pomace (8.4 vs. 1.4 and 0.6 mg/kg for the must wine and skin extract, respectively). Catechin concentrations were similar in the pomace wine and skin extract (56.3 vs. 51.8 mg/kg, respectively), while epicatechin concentration was much greater in the skin extract (35.6 vs. 133.5 mg/kg, respectively). HPLC resulted in separation of at least 124 compounds which absorbed in the ultraviolet region. *C. W. Nagel* (Pullman)

SISTRUNK, W. A., MORRIS, J. R.: **Influence of cultivar, extraction and storage temperature, and time on quality of muscadine grape juice** · Einfluß der Sorte, der Extraktions- und Lagertemperatur sowie der Lagerungsdauer auf die Qualität von Muskat-Traubensaft
J. Amer. Soc. Hort. Sci. **107**, 1110-1113 (1982)
Dept. Hort. Food Sci., Univ. Arkansas, Fayetteville, Ark., USA

Optimum processing and storage conditions for muscadine grape juice were studied as a factorial design with 2 cvs. (Carlos and Noble), 3 extraction temperatures (24, 60 and 80 °C), 3 storage temperatures (2, 24 and 32 °C), 3 storage times (0, 7 and 12 months) and 2 replications. All samples were depectinizated after extraction and before pressing. The bronze-skinned Carlos grape was higher in acidity and lower in soluble solids, pH and total phenols than Noble, a black-skinned cv. There was no significant difference in quality among the cvs. except in colour. Several factors were found

to have significant effects on quality parameters of the juice while several significant interactions between factors were also found. In general the higher extraction temperatures leached out more acids, total phenols and colour but has a detrimental effect on quality in storage at 24 and 32 °C making the juice unacceptable after 7 months at 32 °C storage. Greater changes in quality occurred when juice was extracted at 60 °C than at 24 ° or 80 °C probably due to the action of polyphenoloxidase. Colour and flavour were more stable on juice extracted at 24 °C after 12 months storage although the initial colour and flavour were less acceptable. This seems to indicate the use of mild heating before depectinization in order to obtain optimum colour and flavour extraction.

P. de Wet (Stellenbosch)

SOMERS, T. C.: **Influence du facteur temps de conservation sur les caractéristiques physico-chimiques et organoleptiques des vins** · The influence of preservation time factor on the physicochemical and organoleptic features of wines

Bull. OIV **56**, 172—188 (1983)

Austral. Wine Res. Inst., Adelaide, S. A., Australien

The influence of preservation time on the composition and quality of wines depends on the type of wine. Generally, fortified wines require a longer period of preservation, and they are obtained by keeping them under the effect of lasting oxidizing conditions, at higher temperatures, while white and rosé wines could lose their value under these conditions. The changes occurring in the organoleptic features of white wines are in connection with the hydrolysis and the relations of esterification which develop towards a chemical equilibrium. The evolution of red wines during their maturation is influenced by phenolic compounds, and the term of "chemical age" can be used to express the increasing domination, while wines and the forms of polymeric pigments are aging. The paper refers to the factors which influence the rhythm of transforming red wine colour and offers a dynamic interpretation concerning the composition of phenolic compounds during maturation, referring to the reactions which characterize the chemistry of procyanidines.

M. Macici (Valea Călugărească)

SOTOMAYOR SOLER, J. P.: **Effect of different infection levels of *Botrytis* in grapes, cv. Sauvignonasse, on wine characteristics** · Wirkung unterschiedlicher *Botrytis*-Infektionen bei Reben der Sorte Sauvignonasse auf die Weinqualität (span. m. engl. Zus.)

Agricult. Tec. (Santiago, Chile) **42**, 223—226 (1982)

Substa. Exp. Cauquenes (INIA), Cauquenes, Maule, Chile

Effects on wine composition, must yield, and fermentation speed of 4 different levels of infection with Botrytis cinerea of cv. Sauvignonasse in Chile are reported. Higher levels of infection resulted in lower must yield (64.2 % for control vs. 54.1 % for 75 % of berries infected), longer fermentation times (7 vs. 15 d), and augmentation in concentrations of alcohol (9.9 vs. 13.5 %), volatile acid (0.56 vs. 1.10 g/l as acetic), pH (2.93 vs. 3.42), 100 °C dried extract (16.42 vs. 39.75 g/l), reducing materials (1.04 vs. 4.40 g/l), $OD_{420\,nm}$ (0.09 vs. 0.20), and glycerol (3.43 vs. 9.45 g/l). Tasters preferred significantly wines from the control and lowest infected levels of grapes. *A. D. Webb* (Davis)

SPRANGER GARCIA, M. I., Curvelo Garcia, A. S.: **Anthocyanin recovery from wine byproducts. I. Extraction systems** · Anthocyangewinnung aus Nebenprodukten des Weines. I. Extraktionssysteme (port. m. engl., franz. Zus.)

Ciênc. Téc. Vitivinic. (Dois Portos) **1** (1), 47—53 (1982)

Esta. Vitivinic. Nacl., Dois Portos, Portugal

Anthocyanin extraction from pomace (fresh or stored) with a solution of 2 g sulfurous acid/l at room temperature or with water at 70 °C of the cvs. João Santarém, Tinta Miúda, Alicante Tinto, Benfica, and of a commercial pomace from a cooperative is reported. Total anthocyanin extracted varied with the year, the cv., the freshness of the pomace, and the solvent. Alicante Tinto gave 805 mg/l in 1978; 1350 in 1979. Commercial pomace gave 727 mg/l anthocyanins when fresh vs. 45 when aged 3 months; in 1979, 235 mg/l when extracted with sulfurous acid vs. 105 when extracted with hot water. The anthocyanin mixture is predominantly malvidin- and peonidin-3-monoglucosides.

A. D. Webb (Davis)

SCHMITT, A.: **Aktuelle Weinanalytik. Ein Leitfaden für die Praxis. 2. Auflage** · Topical wine analytics. A guide to practice. 2nd edition

Verlag Heller Chem.- u. Verwaltungsges. mbH, Schwäbisch Hall, 157 S. (1983)
Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

The 2nd edition of the "Aktuelle Weinanalytik" has not a complete bibliography of all analytical methods for cellar management (with reference to EG and OIV regulations and administrative regulations). Instead it has a clear and easily understandable compilation mainly of those examination methods which are available to the expert and with which the beginner can become familiar. — The new edition begins with a short introduction to the research techniques (also with indications of possible sources of error). The following analytical methods for wine and similar beverages, must and fruit juice are then presented: Proportions by weight 20/20 °C (relative composition), alcohol, reducible sugar and sucrose, total extract, non-sugar extract, residual extract, sulfurous acid and ascorbic acid (reductants), total titratable acid, pH values, volatile acids and photometric procedures for the determination of tartaric acid, lactic acid, acetaldehyde, intensity of red wine colour and copper. — The book contains 15 tables, e.g. for the conversion of TSS (°Oe) into alcohol concentration (vol.% and g/l), the conversion of mval acid/l into tartaric acid, acetic acid and sulfuric acid, the conversion of °Kl into °Oe, temperature corrections for °Oe, conversion of alcohol concentration (g/l) into alcohol volume concentration (vol.%), the determination of total extracts from the proportion by weight of the residues after distillation, and the total extracts according to Tabarié. — The book is presented in a very clear form and the references give an additional source for effective and special methods. *A. Rapp* (Geilweilerhof)

WILLIAMS, A. A., LEWIS, M. J., MAY, H. V.: **The volatile flavour components of commercial port wines** · Die flüchtigen Aromastoffe von Portweinen im Handel
J. Sci. Food Agricult. (London) **34**, 311—319 (1983)
Food Beverages Div., Univ. Bristol, Long Ashton, England

Gas chromatographic-mass spectrometric investigation of aroma extracts from both Ruby and Tawny port has led to the identification of 141 components, notably 2-methoxyphenol, dihydro-2 (3H)-furanone, β-methyl-γ-octalactone, cis-4-hydroxy-methyl-2-methyl-1,3-dioxolane and vitispirane. The port wines were extracted with pentane-methylene chloride (2 : 1) and the analyzes were carried out using a 100 m × 0.76 mm glass Carbowax 20 M (SCOT) and a 25 m × 0.25 mm quartz Carbowax 20 M. Odour evaluation of the components separated by gas chromatography indicates 5 regions as being of potential importance in port. 2-Methoxyphenol and dihydro-2 (3H)-furanone were found in 2 of these regions, 3 others being associated with esters of succinic acid. None of these components can, however, wholly explain the port-like odour. *A. Rapp* (Geilweilerhof)

YAMAKAWA, Y., MORIYA, M., ANAMIZU, H.: **Effect of skin contact on Chardonnay wine quality** · Einfluß der Beerenhaut auf die Weinqualität von Chardonnay (jap. m. engl. Zus.)
J. Inst. Enol. Viticult. Yamanashi Univ. **17**, 55—58 (1982)

The effect of maceration (fermentation on skins for short time) on composition and sensory evaluation of Chardonnay white wines was investigated by macerating the crushed grapes at 16—18 °C under CO_2 atmosphere for 0 (control), 3, 6, 12, and 24 h, respectively. Total phenols (Folin-Ciocalteu assay) and ash contents, as well as pH and color (OD_{420}), were increased in accordance with the prolonged maceration periods, e.g.: contents of total phenols increased from 351 ppm to 447 ppm. However, contents of organic acids, especially tartaric acid (determined by HPLC), were slightly decreased in the wines after storage in bottles for 6 months. The wine macerated for 6 h exhibited an increased aroma and fruity flavour compared to the other wines. *I. Ohara* (Yamanashi)

YOKOTSUKA, K., MATSUDO, T., KUSHIDA, T.: **Changes in general constituents and phenols during fermentation in Koshu wine-making with gelatin and gelatin hydrolysates** · Veränderungen der Inhaltsstoffe und phenolischen Substanzen während der Gärung von Koshuwein mit Gelatine und Gelatine-Hydrolysaten
J. Inst. Enol. Viticult. Yamanashi Univ. **17**, 47—54 (1982)
Inst. Enol. Viticult., Yamanashi Univ., Kofu, Japan

Koshu musts and wines were treated with a commercial bone gelatin and 4 kinds of gelatin hydrolysates of different molecular weight (A: 1,000; B: 2,000; C: 5,000; D: 10,000). The effects of these treatments on the wine composition were studied — with special regard to total phenol contents (determined by the method of SINGLETON and ROSSI) — during fermentation and after storage for 33

d. 10 % aqueous solutions of 5 samples were added to the musts (about 200 l) to give the final concentration of 500 ppm (85—95 % were precipitated after storage). The amounts of phenols (most of them seemed to be tannins) precipitated by the addition of 2 hydrolysates (C: 83 ppm; D: 90 ppm) were similar to those of the gelatin (86 ppm) having a molecular weight of 100,000.

I. Ohara (Yamanashi)

ZEE, J. A., SIMARD, R. E., HEUREUX, L. L', TREMBLAY, J.: **Biogenic amines in wines** · Biogene Amine in Wein

Amer. J. Enol. Viticult. **34**, 6—9 (1983)

Dept. Sci. Technol. Aliment., Univ. Laval, Quebec, Kanada

By means of a simple, rapid and accurate ion-exchange method the analysis of 7 biogenic amines (1,3-diaminopropane, histamine, putrescine, cadaverine, tyramine, agmatine, and tryptamine) in wines showed that none of 230 samples contained 1,3-diaminopropane, agmatine or tryptamine. Red wines had significantly higher histamine and putrescine contents (means: 5.7 and 5.1 mg/l) than white wines (3.4 and 1.9 mg/l). Cadaverine was present at low levels in red (0.7 mg/l) and white wines (0.9 mg/l), while the red and white wines contained 5.2 and 4.4 mg/l of tyramine. Concerning the amine content as a function of the country of origin and type of wines, Authors found that French red wines contained the most histamine and putrescine, Spanish red wines the most cadaverine; among the white wines French products contained the most histamine and tyramine, Portuguese wines the most putrescine and cadaverine. It is mentioned that other factors (length of fermentation in presence of pulp and skin, grape cvs., soil composition quality and quantity of finings, nature of bacterial flora in wines during malo-lactic fermentation, etc.) also have to be considered.

R. Woller (Trier)

ZIRONI, R., RIPONI, C., FERRARINI, R., AMATI, A.: **Influence of "sour rot" on the constituents of grapes and on the characteristics of musts and wines** · Effets de la "Pourriture acide" sur les composants des raisins et sur les caractéristiques des moûts et des vins (ital. m. franz. Zus.)

Vignevini (Bologna) **9** (10), 39—46 (1982)

Cent. Ric. Vitic. Enol., Univ. Stud., Bologna, Italien

The disease "sour rot" causes reduced sugar contents in grapes, high amounts of the acetic, gluconic, and uronic acids, and, in addition, of glycerol. In wines, low amounts of higher alcohols, but increased contents of dry matter, minerals, and N substances are to be found. These wines show a negative organoleptic quality. It is difficult to correct the faults by enological means.

R. Woller (Trier)

M. MIKROBIOLOGIE

CIOLFI, G.: **Der Inositolbedarf als Wachstumsfaktor und Gärungsaktivator bei *Saccharomyces uvarum*** · The demand of Inositol as growth factor and a means of activating the fermentation by *Saccharomyces uvarum* (ital. m. franz., engl. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 560—570 (1982)

Ist. Sper. Enol., Asti, Italien

Die mit Mosten und dem synthetischen Nährboden MNS durchgeführten Versuche ergeben, daß Inositol die durch *Saccharomyces uvarum* hervorgerufene Gärung stark aktiviert. Dies könnte ein Grund sein, warum unter bestimmten Verhältnissen letztere dominiert und den Vorgang in relativ kurzer Zeit zu Ende führt. Zur Untersuchung der Gäreigenschaften ist der Nährboden zu ändern, d. h. das Inositol auf 200 mg/l zu erhöhen. Die Behauptung RIBEREAU-GAYONS, daß im Most 1000 × mehr Inositol vorhanden ist als für die Hefen notwendig, kann für *S. cerevisiae* gelten, nicht aber für *S. uvarum*.

B. Weger (Bozen)

DELFINI, C., CIOLFI, G.: **Die Anwendung der Reinzuchthefen in der Kellerwirtschaft: Ziele, Schwierigkeiten und Aussichten. Versuchsergebnisse** · The use of selected

yeasts in oenology: aims, difficulties and prospectives. Some experimental results (ital. m. engl. Zus.)
Vignevini (Bologna) **9** (10), 47—50 (1982)
Ist. Sper. Enol., Asti, Italien

Die auch in Großversuchen bestätigten Ergebnisse lassen erkennen, daß der Hefestamm einen maßgeblichen Einfluß auf die Qualität des Weines ausübt. Eine Steigerung der Weinqualität und der Typausprägung ist möglich. Die Ergebnisse der Versuche sind nicht unbedingt signifikant, berechtigen aber zum Optimismus und zur Fortführung der Versuche. *B. Weger* (Bozen)

GARABEDYAN, M., PIPERKOVA, R., SPIROV, N., ANDONOVA, G., KOTEVA, K.: **Vergleichende Erprobung von aktiven Trockenhefen** · Comparative examinations of active dry yeasts (bulg.)
Lozar. Vinar (Sofia) **31** (8), 16—20 (1982)
Inst. Vinar. Prom., Sofia, Bulgarien

Die Heferassen Montrachet, Pastor, Eperne und Bäckerhefe (alle bulgarischer Herkunft) wurden hinsichtlich der erzielten Weinqualitäten verglichen. Am besten schnitt Pastor, am zweitbesten Eperne ab, während mit der Bäckerhefe die am wenigsten günstigen Qualitäten erzielt wurden. Die Gehalte an unvergorenem Zucker schwankten zwischen 2,6 und 4,8 g/l. *J. Blaha* (Brno)

GUERZONI, M. E., MARCHETTI, R., GIUDICI, P., SALOMONI, G.: **Microbiologische und kellertechnische Betrachtungen zur *Botrytis*-Bekämpfung** · Microbiological and enological considerations of *Botrytis* control (ital.)
Vignevini (Bologna) **9** (9), 23—29 (1982)
Ist. Ind. Agrar., Univ. Bologna, Italien

Es wurde kein Einfluß verschiedener *Botrytis*-Mittel auf die Traubenreife gefunden. Gärversuche mit *Saccharomyces cerevisiae* nach Zusatz von 5 ppm Vinclozolin und Procimidon ergaben eine Erhöhung der höheren Alkohole und deren Ester. Änderungen gleichen oder höheren Ausmaßes durch Wechsel des Hefestammes sind bekannt. Wenn auch diese Versuche den Mechanismus der Wirkung von Vinclozolin, Iprodion, Procimidon und M 8164 nicht klären konnten, wird festgestellt, daß ein Einfluß auf den Metabolismus der Hefe stattgefunden hat, der sich in einer Stimulierung der anaeroben Umwandlung der Zucker ausdrückt. Die festgestellten Veränderungen — Erhöhung des Ethanolgehaltes und der höheren Alkohole und deren Ester — hängt jedoch größtenteils vom Hefestamm ab und hat keine Änderung der sensorischen Eigenschaften des Weines zur Folge.
B. Weger (Bozen)

HAZNEDARI, S.: **Mechanical harvest of grapes: observations on the blastomycetic flora and the fermentative behaviour of musts and the fermentative behaviour of musts which the process was first applied** · Mechanische Traubenernte: Untersuchungen über die Hefenflora und das Gärverhalten von Mosten im gleichen sowie in dem auf die mechanische Lese folgenden Jahr (ital., engl.)
Vini d'Italia **24**, 159—171 (1982)
Ist. Microbiol. Lattiero-Casearia, Fac. Agrar., Perugia, Italien

[The German translation of the title corresponds with the Italian title. — Ed.] The effect of mechanical harvesting of grapes on fermentation rates and yeast microflora were studied during the 1977, 1978 and 1979 harvests. Mechanically harvested and manually harvested fruit showed comparable fermentation rates when the grapes had been harvested manually from the same vineyards the previous growing season. However, when the grapes had been harvested mechanically the previous year, a delay in initiation of fermentation was observed in musts prepared from manually harvested fruit. A change in the yeast flora was believed to explain the increased lag phase. In 1978, grapes harvested manually in both seasons showed a higher incidence of *Kloeckera apiculata* and *Saccharomyces cerevisiae* over those harvested mechanically the previous year, in 1977. In 1979, mechanical harvesting in the previous year resulted in a higher incidence of *Torulopsis stellata.*
D. Splittstoesser (Geneva)

LANARIDIS, P., LAFON-LAFOURCADE, S.: **Contrôle microbiologique des vins. Influence de la composition du milieu nutritif solide sur le dénombrement des bactéries lactiques des vins** · Microbiological control of wines. Influence of the composition of the solid nutrient medium on the enumeration of lactic acid bacteria in wines
Bull. OIV **56**, 433—437 (1983)
Inst. Oenol., Univ. Bordeaux II, Talence, Frankreich

In a preliminary study, Authors have compared 3 media for the enumeration of 3 bacteria *(Leuconostoc oenos, L. mesenteroides, Lactobacillus hilgardii)* in wine. Viable populations were observed during both the latent and the dying off phases of their physiological state. Wide variations occurred between the media. These results demonstrate the need to choose or develop a standard medium for the enumeration of lactic acid bacteria. This could only be achieved after more systematic studies, using a larger number of bacterial strains, wines and solid media.
C. L. Duitschaever (Guelph)

LIU, J.-W. R., GALLANDER, J. F.: **Effect of insoluble solids on the sulfur dioxide content and rate of malo-lactic fermentation in white table wines** · L'effet de la matière insoluble sur le contenu en anhydride sulfureux et sur la vitesse de fermentation malo-lactique dans les vins blancs te table
Amer. J. Enol. Viticult. **33**, 194—197 (1982)
Dept. Hort., Ohio Agricult. Res. Develop. Center, Wooster, O., USA

Insoluble solids in grape juice were adjusted from 0 to 15 %. A total of 30 mg SO_2/l was added and the juice inoculated with *Saccharomyces cerevisiae* MONTRACHET No. 522. The dry wine was inoculated with *Leuconostoc oenos* PSU-1. High insoluble solids content caused a decrease in the total SO_2 concentration in the juice. Authors speculated that an unknown factor present in the solids may be responsible. The loss of SO_2 in wine was offset by the production of SO_2 by the yeasts. The rate of yeast fermentation and malo-lactic fermentation was highest in the presence of high concentrations of insoluble solids. Authors suggest that certain necessary growth factors are extracted from the solids. *C. L. Duitschaever* (Guelph)

LIU, J. R., GALLANDER, J. F.: **Effect of pH and sulfur dioxide on the rate of malolactic fermentation in red table wines** · Wirkung von pH und Schwefeldioxid auf den Säureabbau in roten Tafelweinen
Amer. J. Enol. Viticult. **34**, 44—46 (1983)
Dept. Hort., Ohio Agricult. Res. Develop. Center, Wooster, O., USA

The pH of 3 must samples from Chancellor, a red French hybrid, was adjusted to 3.3, 3.5, and 3.7, respectively. Musts at each pH were treated with 25, 50, and 75 ppm SO_2, respectively, and then inoculated with a wine yeast, *Saccharomyces cerevisiae* MONTRACHET ≠ 522. When the fermenting musts reached 5 °Brix, each was inoculated with a malolactic bacterium, *Leuconostoc oenos* PSU-1. For each level of SO_2, rates of malolactic fermentation were nearly the same at pH 3.5 and 3.7, but fermentation was much slower at pH 3.3. At a given pH, malolactic fermentation was faster at the lower SO_2 levels. Following inoculation, the bacterial population decreased, and the lowest bacterial count was observed in the presence of low pH and high SO_2. *L. R. Mattick* (Geneva)

MAYER, K., VETSCH, U., PAUSE, G.: **Einleitung des biologischen Säureabbaus mit lyophilisierten Bakterien. Laborversuche mit 1982er Weinen** · Induction of malo-lactic fermentation using lyophilised bacteria. Laboratory trials with 1982 wines
Schweiz. Z. Obst- Weinbau **119**, 197—200 (1983)
Eidgenöss. FA f. Obst- Wein- Gartenbau, Wädenswil, Schweiz

The paper reports on the continuing efforts to select more suitable bacteria strains in order to make induction a commercially viable proposition. After some substantial modifications of growth and harvest conditions as well as the lyophilisation process (no details given) the strain L 82 F was found to have improved characteristics. Tests were done in duplicate 1 l lots of 10 white and 3 red wines at 16.5—17 °C. Selection criteria were survival rate and the speed of acid conversion. — Investigations continue to improve this strain even further. *R. Eschenbruch* (Te Kauwhata)

MINÁRIK, E.: **Levures de contamination des vins embouteillés** · Yeasts contaminating bottled wines
Bull. OIV **56**, 414—419 (1983)
Inst. Rech. Viti-vinic. Bratislava, CSSR

Author studied the yeast flora of sweet wines before, during and after bottling. *Saccharomyces bailii* var. *bailii* was the predominant yeast found in bottled wines of Czechoslovakia. This yeast is resistant to a combination of 800 mg sorbic acid/l and 9 mg SO_2/l. — Contamination originated from sites with difficult access for proper sanitation on the bottling line. Treatments of the wines by membrane filtration and/or hot bottling (51—52 °C) are more efficient to destroy contaminating yeasts than chemical preservatives such as mixtures of sorbic acid and SO_2. *C. Buteau* (Guelph)

PORTER, L. J., OUGH, C. S.: **The effects of ethanol, temperature, and dimethyl dicarbonate on viability of *Saccharomyces cerevisiae* MONTRACHET No. 522 in wine** · Les effets de l'éthanol, de la température et du bicarbonate diméthylique sur la viabilité de *Saccharomyces cerevisiae*, MONTRACHET No F 522, dans le vin
Amer. J. Enol. Viticult. **33**, 222—225 (1982)
Dept. Viticult. Enol., Univ. California, Davis. Calif., USA

Authors studied the effect of dimethyl dicarbonate (DMDC) on the survival of *Saccharomyces cerevisiae* MONTRACHET No. 522 inoculated into wine adjusted to 8 and 10 % alcohol (v/v), containing 2 % glucose and incubated at varying temperatures ranging from 5 °C to 30 °C. Optimal effectiveness of DMDC was slightly above 20 °C. Within 10 min, with an application of 100 mg DMDC/l of wine containing 10 % alcohol, yeast counts were essentially zero. The fungicide was more effective in the higher alcohol concentration, indicating a synergistic effect between alcohol content and temperature. *C. L. Duitschaever* (Guelph)

RIPONI, C.: **Aktuelle Tendenzen in der Kellerwirtschaft: Kontrolle und Beeinflussung der Gärung** · The present tendencies in enology: the fermentation, its control and influence (ital.)
Vignevini (Bologna) **9** (9), 15—21 (1982)
Cent. Ric. Vitic. Enol., Univ. Stud., Bologna, Italien

Anhand von ausführlichen Literaturzitaten werden die Hefen, die Gärtemperatur, die gärfördernden Zusätze, die Entsäuerung und die Stabilisierung der Moste beschrieben und ihre Wirkung erläutert. *B. Weger* (Bozen)

SUZZI, G., ROMANO, P.: **Induced changes by SO_2 on the population of *Saccharomyces* as agents of the natural fermentation of musts** · Beeinflussung der *Saccharomyces*-Population und der spontanen Mostgärung durch SO_2 (ital., eng.)
Vini d'Italia **24**, 138—145 (1982)
Ist. Microbiol., Univ. Bologna, Italien

800 yeasts from nonsulfited wines were compared with 800 isolates from wines treated initially with 100 mg/l SO_2. The predominant spp. from both were *Saccharomyces cerevisiae, S. chevalieri, S. bayanus, S. uvarum* and *S. rosei;* SO_2 increased the incidence of *S. bayanus* from 5 to 12 %, mainly at the expense of *S. cerevisiae.* Both groups of isolates produced comparable amounts of H_2S and exhibited similar flocculation properties. A higher percentage of those from sulfited wines (24 vs. 12 %) caused excessive foaming. Yeasts from the sulfited wines were more resistant to SO_2 and generally formed greater amounts; e.g., 56 % of the isolates produced over 15 mg/l SO_2 compared to only 13 % of the yeasts from nonsulfited wines giving this amount. Differences in sulfur metabolism also were noted when the isolates were cultured on the agar medium of Nickerson.
D. Splittstoesser (Geneva)