

DOKUMENTATION  
DER  
WEINBAUFORSCHUNG

## C. PHYSIOLOGIE

AĞAOĞLU, Y. S., ERIŞ, A.: **Effects of some plant growth regulators on the yield and quality of Muscat of Hamburg grape variety** · Einfluß einiger Wachstumsregulatoren auf den Ertrag und die Qualität der Rebsorte Muskat Hamburg (m. türk. Zus.)

J. Fac. Agric., Univ. Uludağ, (Bursa, Turkey) 1 (1), 51—67 (1982)

Dept. Hort., Univ. Uludağ, Bursa, Türkei

Effects of DMC (N-dimethylmorpholinium chlorid) and Ethrel (2-chloroethylphosphonic acid) applications on yield and quality of Muscat of Hamburg grapes were investigated. Applied concentrations were 0, 100, 500 and 1000 ppm for both plant growth regulators. DMC applications increased yield/vine, cluster weight, number of berries/cluster and total acids statistically and their increasing ratio depended on the application concentrations. Contrarily, the weight of 100 berries, volume of 25 berries and TSS decreased statistically, pH values and berry size arithmetically. All Ethrel concentrations decreased the yield statistically. Any significant differences between the applications and the control could not be found for the other characteristics. E. Eriş (Ankara)

ARUTYUNYAN, E. A., OGANESYAN, R. S.: **Influence of different elements of mineral fertilizers on the change of endogenous growth regulators in vine leaves** · Einfluß verschiedener Elemente von Mineralstoffdüngern auf die Veränderung endogener Wachstumsregulatoren in Rebblättern (russ. m. armen., engl. Zus.)

Biol. Zh. Armenii (Erevan) 35, 356-360 (1982)

Grapevine plants of the cv. Adisi (medium frost-resistant) were cultivated in lysimeters with the following combinations of mineral elements: control, NP, NK, PK, NPK (0.1 g/kg soil). Leaves from 4-year-old plants were collected during the phases: berry formation, growth and ripening (June to July). The endogenous growth regulators were extracted and analysed chromatographically, and the growth activity of the zones was tested on wheat coleoptiles. At berry formation, the maximum inhibitory activity on coleoptile growth were found in the PK plants (28 %), the medium in control (20 %) and NPK (19 %) plants and the minimum in NK (12 %) plants. At berry ripening, the inhibitory activity of endogenous growth regulators on coleoptile growth was 4—13 % less. Again minimum in NK (8 %) was found and maximum in NP plants. Thus, mineral fertilization influenced substantially the content and activity of phenol-like endogenous growth regulators. I. Tichá (Prag)

BERNARD, A. C., VERGNES, A.: **Expression quantitative de l'évolution du nombre de boutons floraux et de baies du débourrement à la vendange chez deux cultivars de *Vitis vinifera* L., le Grenache et le Carignan** · Quantitative expression of the evolution of the number of flower buds and berries from budding to harvest time in two *Vitis vinifera* L. cvs: Grenache and Carignan (m. engl., dt., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) 16, 233—240 (1982)

Sta. Rech. Vitic. (INRA), Montpellier, Frankreich

A comparative study was carried out in the vicinity of Montpellier during one season in order to assess time and magnitude of flower bud shedding, with the help of tulle bags surrounding flower clusters in 2 cvs.: Grenache and Carignan. The weather was mild and sunny at blossoming time, excluding any climatic coulure. Grenache inflorescences always bear more flower buds than Carignan; the loss, which is nearly nil from budding to anthesis, occurs mainly from the 5th to the 15th d after anthesis and stands for 92 % of total loss. In the cv. Grenache, the losses of flower buds and young berries amount to 76 % of the number of the initial flower buds and to 56 % in Carignan. Statistical tests have played no part in this study. C. Duménil (Reims)

CAWTHON, D. L., MORRIS, J. R.: **Relationship of seed number and maturity to berry development, fruit maturation, hormonal changes and uneven ripening of Concord (*Vitis labrusca* L.) grapes** · Die Beziehung von Samenzahl und -reife zu Beerenentwicklung, Fruchtreifung, hormonellen Veränderungen und ungleichmäßigem Reifen bei Concordreben (*Vitis labrusca* L.)

J. Amer. Soc. Hort. Sci. 107, 1097—1104 (1982)

Dept. Hort. Food Sci., Univ. Arkansas, Fayetteville, Ark., USA

The seed number/berry was positively correlated to the berry fresh and dry weight and to the accumulation of labelled photosynthates, but not to the berry content of indole-acetic acid (IAA), abscisic acid (ABA) or percentage of acidity (hormone analysis by HPLC). After veraison the percentage of soluble solids and the intensity of juice color was inversely related to seed number. Few seeds/berry led to nonripe berries at the time of harvest. Berries containing an immature seed did not accumulate ABA or enter ripening. About 55 d after anthesis the IAA levels had declined to basal levels while the ABA level started to increase 65 d after anthesis, i.e. about 7 d before veraison.  
H. Düring (Geilweilerhof)

**DÜRING, H.: Der Wasserzustand der Rebblätter als Indikator der Bewässerung · The water balance in vine leaves as an indicator for irrigation**

Weinwirtschaft (Neustadt/Weinstr.) **119**, 42—46 (1983)

BFA f. Rebenzücht. Geilweilerhof, Siebeldingen

For regulating an irrigation system, the use of the water balance in the vine is proposed. To estimate the water balance, the maximum of leaf water potential (before sunrise) and the minimum of leaf water potential (between 2 and 3 p.m.) are important. Irrigation should be applied, if the minimum of leaf water potential corresponds with the osmotic potential of the leaf. The osmotic potential does not change diurnally but seasonally (–7.4 bar to –11.5 bar). Irrigation should be finished when the maximum of leaf water potential (before sunrise) reaches 0 to –1 bar.

E.-H. Rühl (Hohenheim)

**DZHAPARIDZE, I. G., KETSKHOVELI, E. N., GIGINEISHVILI, M. N., KINKLADZE, D. CH., SARADZHEVA, M. A.: The influence of chlorocholine chloride on the chlorophyllase activity in some grapevine cultivars · Der Einfluß von CCC auf die Chlorophyllaseaktivität bei einigen Rebsorten (russ. m. grus., engl. Zus.)**

Soobshch. Akad. Nauk Gruzinsk. SSR (Tbilisi) **106**, 585—588 (1982)

Inst. Bot. Akad. Wiss. Grus. SSR, Tbilisi

The grapevine cvs. Rkatsiteli and Goruli Mtsvane were sprayed with 0.1 % CCC solution 3 × during vegetation period: before flowering (end of May), at the growth of berries (beginning of July) and at ripening. The chlorophyllase activity in leaves, bark and wood was followed in June, September, December and February. In the leaves of both cvs. chlorophyllase activity increased by 7.5—23 % after spraying with CCC in June and September. In bark and wood, chlorophyllase activity was substantially less than in the leaves and it decreased during winter. In Rkatsiteli, a slight decrease of chlorophyllase activity in bark and wood after spraying CCC was observed in February.

I. Tichá (Prag)

**ERİŞ, A.: Studies on the determination of chilling requirements and frost resistance of some grape varieties grown under Ankara conditions · Untersuchungen über die Bestimmung des Kältebedürfnisses und der Frostresistenz einiger Rebsorten unter den Klimabedingungen von Ankara (türk. m. engl., dt. Zus.)**

Publ. Fac. Agric., Univ. Ankara (856), 65 S. (1982)

Dept. Hort., Univ. Ankara, Türkei

In order to determine the chilling requirements of grape cvs. (Chaus, Muscat of Hamburg, Hafizali, Karagevrek and Kalecik karasi), temperature summations below +7 °C for the period between September and March were considered in the experimental periods 1980—81 and 1981—82. The chilling requirements were determined 100—150 h for Chaus, 100—200 h for Kalecik karasi, 180—250 h for Muscat of Hamburg and Karagevrek, 350—400 h for Hafizali. Frost resistance tests were conducted in the periods between November and March of both experimental years. For this purpose, cuttings taken at different periods, were treated with –20 °C for 24, 48, 72 and 96 h. Frost resistance of the cvs. increased from December to mid-winter. Their resistance was highest in February, lowest in November, and decreased in March. Minimum freezing injuries were observed in Muscat of Hamburg, Kalecik karasi and Chaus extremely injured were Hafizali and Karagevrek.

A. Eriş (Ankara)

**FAUSTINI, R.: Novel methods for the conservation of genetic material from grapevine: in-vitro-culture · Neuere Methoden zur Konservierung von genetischem Material der Rebe: in-vitro-Kultur (ital.)**

Vignevisini (Bologna) **9** (9), 11—13 (1982)

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

The present state of knowledge on conservation of *Vitis vinifera* plant material under in-vitro conditions is given in a brief review article. The principles of multiplication and cold storage are described. *R. Blaich* (Geilweilerhof)

FREEMAN, B. M., KLIEWER, W. M., STERN, P.: **Influence of windbreaks and climatic region on diurnal fluctuation of leaf water potential, stomatal conductance, and leaf temperature of grapevines** · Der Einfluß des Windschutzes und der Klimaregion auf den diurnalen Verlauf des Blattwasserpotentials, der stomatären Leitfähigkeit und der Blattertemperatur von Reben

Amer. J. Enol. Viticult. **33**, 233—236 (1982)

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

In 2 viticultural regions of California, Greenfield and Davis, eucalyptus windbreaks reduced the wind speed (at Greenfield from 4—6 m · s<sup>-1</sup> to 1.5 m · s<sup>-1</sup>), which led to a higher stomatal conductance and a more negative water potential. The reduced stomatal conductance of non-sheltered vines appeared not to be due to water stress. While at Davis (Region IV, according to the Winkler-Amerine degree day system) stomatal conductance remained high for about 12 h/d, at Greenfield (Region II) stomata remained open 4 (non-sheltered) or 8 h/d (sheltered). The consequences to the photosynthetic rate and to the grape quality are discussed. *H. Düring* (Geilweilerhof)

GIGINEISHVILI, M. N., KETSKHOVELI, E. N., DZHAPARIDZE, I. G., KINKLADZE, D. CH., SARADZHEVA, M. A.: **Study on chlorophyllase activity in grapevines** · Untersuchung der Chlorophyllaseaktivität bei Reben (russ. m. grus., engl. Zus.)

Soobshch. Akad. Nauk Gruzinsk. SSR (Tbilisi) **105**, 365—368 (1982)

Inst. Bot., Acad. Sci. Georg. SSR, Tbilisi, Georg. SSR

Chlorophyllase is localized in the chlorophyll-lipoprotein-complex of the chloroplast and takes part in the reactions of chlorophyll biosynthesis. Chlorophyllase activity in leaves (from May to October) and in bark and wood (from June to April) of the grapevine cvs. Rkatsiteli, Goruli Mtsvane, Chinuri and Saperavi was studied. Chlorophyllase activity in the leaves exceeded that in bark and wood. Maximum chlorophyllase activity in leaves, bark and wood of all cvs. studied was found in June and July and coincided with the maximum in chlorophyll content. The frost-resistant cv. Rkatsiteli had the highest chlorophyllase activity in leaves, bark and wood in comparison with the other less frost-resistant cultivars investigated. *I. Tichá* (Prag)

HRČEK, L.: **The role of trace elements in biochemical processes in grapevines** · Die Rolle der Spurenelemente bei biochemischen Prozessen der Rebe (slowen.)

Zb. Bioteh. Fak. (Ljubljana) **37**, 147—158 (1981)

On the base of own experiences and the results of other investigators Author gives a review of the influences of bigger, smaller and normal doses of trace elements (B, Zn, Mn, Cu, Mo, Co and Cl) on the morphological changes and biochemical processes in grapevines. *M. Milosavljević* (Belgrad)

JAQUINET, A., DOMAHIDY, M., AERNY, J.: **Le Chasselas millerandé. Évolution quantitative et qualitative au cours de la maturation** · Millerandage (hen and chickens berries) in Chasselas. Quantitative and qualitative evolution during ripening

Rev. Suisse Viticult. Arboricult. Hort. (Changins) **14**, 163—168 (1982)

Sta. Féd. Rech. Agron. Changins, Nyon, Schweiz

Millerandage in Chasselas vintages is frequent in Swiss cantons. When the proportion of small berries is very high, it is necessary to know — as the latter ripen before normal berries — whether the small berries or the normal berries should be taken into account before determining the harvest time. Harvests followed by pressing — first of normal berries and then of small berries with stalks — were made at different periods. Data show that if small berries improve the quality of the vintage because of high sugar and extract content and of their low malic acid percentage, the part they play in the must quality decreases quickly compared with the prominent part which is soon played by normal berries. Therefore, only the ripeness of big berries should be taken into account, when determining the harvest time. *C. Duménil* (Reims)

KOBLET, W., PERRET, P.: **Wanderung, Einlagerung und Mobilisation von Kohlenhydraten in Reben** · Translocation, accumulation and mobilization of carbohydrates in grape vines (m. engl., franz., Zus.)

Wein-Wiss. 37, 368—382 (1982)

Eidgenöss. FA f. Obst- Wein- Gartenbau, Wädenswil, Schweiz

In 18—21 years old grapevines (var. Müller-Thurgau) labelled assimilates, applied as  $^{14}\text{CO}_2$  or  $^{14}\text{C}$  tobacco starch, were found to be transported into the stems of the vines. In the following years — in some cases even in the subsequent 2 years — the young shoots showed  $^{14}\text{C}$  activity (X-ray film technique). Authors assume that assimilates can be mobilized in the stem and are translocated into the clusters.  
H. Düring (Geilweilerhof)

NAGATA, K., KURIHARA, A.: **The varietal difference in the response of grape cultivars to gibberellin application** · Sortenunterschiede in der Reaktion auf Gibberellinanwendung bei Reben (japan. m. engl. Zus.)

Bull. Fruit Tree Res. Sta. (Akitsu, Hiroshima) Ser. E (4), 7—19 (1982)

Effects of GA applied to the cluster before bloom on seedlessness, pollen germination and hardening of cluster rachis were investigated with 67 cvs. and discussed in relation to the species. — The ratio of seedless berries induced by GA tended to be higher in cvs. of *Vitis vinifera* L. than in those of *V. labruscana* BAILEY. The germinability of pollen was reduced by GA more remarkably in the pollen of *V. vinifera* cvs. compared with that of *V. labrusca*. — A negative correlation was recognized between the average number of seeds in GA-untreated clusters and the ratio of seedless berries in GA-treated clusters. — Hardening of rachis was caused by GA more or less, and the hardness, varied with cvs., was more related to the variation of metaxylem development in rachis tissue rather than of species.  
Y. Motomura (Sendai)

PONCHIA, G., MAGHERINI, R., MARGIOTTA, M.: **Investigation on the applicability of chlo-roethylphosphonic acid (CEPA) for improving grape berry abscission** · Untersuchung über die Anwendungsmöglichkeit von Chlorethylenphosphonsäure (CEPA) zur leich-teren Abtrennung der Traubenbeeren (ital. m. engl. Zus.)

Riv. Viticolt. Enol. (Conegliano) 35, 353—363 (1982)

Ist. Colt. Arbor., Univ. Florenz, Italien

To improve the efficiency of mechanical harvesting, grapes of the cvs. "Sangiovese" and "Treb-biano Toscano" were sprayed 4 weeks before harvest with 1500 and 3000 ppm CEPA (Ethrel). The "fruit removal force" (FRF) diminished in the Sangiovese cv. 14 and 21 d after treatment without a significant difference between the concentrations of CEPA. In the Trebbiano cv., the 1500 ppm concentration was not effective, but with 3000 ppm concentration the F.R.F. was reduced already after 6 d of the treatment. — No significant effect of CEPA treatments was found on TSS percent, pH and total acidity. 3000 ppm CEPA anticipated leaf abscission in both cvs. In Sangiovese cv. bud burst was retarded in the next spring, and in Trebbiano cv. reduced. To facilitate mechanical harvesting, vines should be trained accordingly.  
S. Guelfat-Reich (Bet Dagan)

POOL, R. M.: **Effect of mepiquat chloride on the growth and yield of "Concord" grape-vines** · Die Wirkung des Mepiquatchlorid auf Wachstum und Ertrag von Concordreben

J. Amer. Soc. Hort. Sci. 107, 376—380 (1982)

Dept. Pomol. Viticult., N.Y. Agricult. Exp. Sta., Cornell Univ., Geneva, USA

Mepiquatchlorid (MP-Cl, 10—10,000 ppm) was applied at the late prebloom stage, during bloom or at berry set to study its effects on shoot growth, fruit set and yield of *Vitis labruscana* BAILEY, cv. Concord. Prebloom foliar application (5000 and 10,000 ppm) caused chlorosis or necrosis and deformation of the leaves. Berry set and size, cluster weight and internode number with periderm was reduced. Berry number per (basal) cluster was increased by 250—1000 ppm MP-Cl. The inhibiting effects on shoot growth were restricted on preexisting but not yet fully expanded internodes. Pre-bloom medial cluster dips (1000 ppm) and bloom treatment (500—5000 ppm) increased berry number per cluster while berry weight was reduced by prebloom, bloom and berry set applications. Cluster weight was increased only by bloom applications. MP-Cl appears to exert its effect directly on the developing flowers rather than via vegetative growth control.  
H. Düring (Geilweilerhof)

REUTHER, G.: **The effect of water stress on photosynthesis and transpiration of *Vitis vinifera* under different ecological conditions** · Die Wirkung eines Wassermangelstresses auf Photosynthese und Transpiration bei *Vitis vinifera* unter unterschiedlichen ökologischen Bedingungen

In: METZNER, H. (Ed.): *Photosynthesis and Plant Productivity*, 78—82. Wiss. Verlagsges. mbH, Stuttgart (1983)

Inst. Bot., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

Young container-grown "Reichensteiner" plants were subjected to a 6—8-week drought stress (30 % field capacity). At 30 or 35 °C and 50 % relative humidity, well watered plants showed no stomatal closure while in water-stressed plants stomata were partially (30 °C) or completely (35 °C) closed. After 4 weeks of water stress, a recovery of photosynthesis was observed. While photosynthesis of watered and stressed plants was only slightly influenced by different relative humidities, transpiration of watered plants was distinctly higher at a lower air humidity. Stressed plants showed an increase of transpiration after 10 weeks of stress irrespective of the air humidity.

H. Düring (Geilweilerhof)

WALTER, B.: **Untersuchungen zur Behebung von Zink-Mangel bei Rieslingreben an der Mosel durch Blattdüngung mit Wuchsal** · Investigations on the elimination of Zn deficiency of Riesling vine in the Mosel Valley by leaf application with Wuchsal (m. engl. Zus.)

Wein-Wiss. 38, 28—33 (1983)

Inst. Bodenk., LLVA Wein- Gartenbau, Landwirtschaft., Trier

Zn deficiency could be better overcome by Wuchsal application than by ZnSO<sub>4</sub> fertilization of the soil. The amount of healthy grapes and the total yield increased without any secured effect on the sugar content in berry juice.

K. Herwig (Geilweilerhof)

## D. BIOCHEMIE

KARL, CH., MÜLLER, G., PEDERSEN, P. A.: **Ellagitannine aus den Blättern von *Vitis vinifera*** · Ellagitannins from the leaves of *Vitis vinifera* (m. engl. Zus.)

Z. Naturforsch. (Tübingen) 38 c, 13—16 (1983)

3 intensively yellow coloured, crystalline ellagitannins, components A, B and C, were isolated from methanolic extracts of dried grape leaves (*V. vinifera*; Weisser Riesling) in approximately 0.1—0.5 g/kg quantities. The structure of substance A was found to be identical to Brevilagin 1, a 1,3- and 4,6-dehydrohexahydroxydiphenylglucose. Based on molecular weight determinations by fast atom bombarding mass spectrometry and the occurrence of glucose, ellagic and gallic acids after hydrolysis, compounds B and C were tentatively identified as digalloyldiphenolic esters of glucopyranose. The phenolic dimer is believed to be stabilized by a phenolic ester linkage between 2 hydroxyl groups as in Terchebin. — Proton magnetic resonance data favour the existence of a 1,3,4,6-substitution of glucose in both cases, thus implicating that B and C differ merely in the molecular arrangement of the gallic and dehydrohexahydroxydiphenic acid substituents. Compound C was finally characterized as 1,3-digalloyl-4,6-dehydrohexahydroxydiphenylglucose (suggested name: vitilagin) and substance B as 3,4-digalloyl-1,6-dehydrohexahydroxydiphenylglucose (isovitilagin), respectively.

H. P. Ruffner (Zürich)

LAVAUD, J. J.: **Mise en évidence de l'acide arachidique dans les sarments et les boutures d'Ugni blanc** · Study on the occurrence of arachidic acid in canes and cuttings of the cv. Ugni blanc (m. engl., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) 16, 165—169 (1982)

Lab. Physiol. Vég. Ampélog., Univ. Bordeaux I, Talence, Frankreich

In addition to other saturated and unsaturated fatty acids, previously reported to be present in various parts of the vine, arachidic acid (C 20:0) was identified by GLC of its methyl ester in extracts of matured canes from *Ugni blanc*. Because the C 20:0 component was not found in material sampled shortly after lignification, the effect of storage time, temperature and subsequent plant redevelop-

ment on its occurrence in the neutral lipid, glycolipid and phospholipid fractions was investigated. However, no clear cut correlation between these factors and the respective arachidic acid contents was detectable, although cold temperatures appear to have an at least temporary influence on arachidic acid metabolism. *H. P. Ruffner (Zürich)*

MESIAS, J. L., MAYNAR, J. I., MARECA, I.: **Études de l'arôme de certaines variétés de *Vitis vinifera*** · Studies on the aroma of some *Vitis vinifera* L. cultivars  
Rev. Franç. Oenol. (Paris) **22** (88), 55—60 (1982)

Lab. Oenol., Dépt. Biochem., Fac. Sci. Univ. Extramadure, Badajoz, Spanien

The volatile components, which contribute to the aroma of maturing grape berries, were studied in the 3 more abundant *Vitis vinifera* L. cvs. of Tierra de Barros area in Spain, namely Cayetana, Pardina and Macabeo. The extraction of the volatile compounds was performed by a modified extraction technique, which was rapid, simple and reproducible for grape juice, whereas the separation and identification was done by gas chromatography and mass spectroscopy. During ripening, there was a parallel increase in sugars and aromatic compounds; ethanol was already present at veraison; alcohols and aldehydes in C<sub>6</sub> decreased with progressing ripening; Macabeo grapes contained some superior esters highly aromatic; in Cayetana, a rapid increase occurred at the final phase of maturity, whereas in both cvs., Cayetana and Pardina, mature grape berries had a very similar composition in aromatic compounds. *K. A. Roubelakis-Angelakis (Heraklion)*

STEFANO, R. DI: **Occurrence of linalool precursors in white Muscat of Piemonte** · Vorkommen von Linaloolvorstufen in weißem Muskat von Piemont (ital. m. engl. Zus.)  
Vignevini (Bologna) **9** (7—8), 45—47 (1982)

Ist. Sper. Enol., Asti, Italien

500-ml white Muscat of Piemonte must, neutralized with solid NaOH, is extracted first with pentane, and then with 60—40 pentane-dichloromethane. The same sample, after detanninization with lead acetate, is extracted a third time with ethyl acetate. The dried and concentrated extracts are analyzed by thin-layer chromatography on silica and on cellulose plates. Bands are scraped from the plates and steam distilled from a tartaric acid solution. The distillate is extracted with dichloromethane, dried, concentrated and analyzed on GC and GC-MS. The aq. residue is run over an anion exchange resin (Bio-Rad AG 1 × 8, 100—200 mesh, acetate form) collecting the sugars. — One isolate gives, on acid hydrolysis, mainly linalool and arabinose. Among the hydrolyzates are found  $\alpha$ -terpineol and geraniol which probably come from linalool. There is also another hexose which comes from an impurity or possible terpene alcohol precursor. *A. D. Webb (Davis)*

TROUSDALE, E. K., SINGLETON, V. L.: **Astilbin and engeletin in grapes and wine** · Astilbin und Engeletin in Trauben und Wein

Phytochemistry (Oxford) **22**, 619—620 (1983)

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

2 dihydroflavonols (flavanonols), viz., astilbin (dihydroquercetin 3-rhamnoside) and engeletin (dihydrokaempferol 3-rhamnoside) were isolated for the first time from white grape berry skins (Chardonnay) by LC and semi-preparative HPLC. Identification included non-derivatized <sup>1</sup>H NMR spectra. They were detected in 4 white wines in amounts 0.1—2.0 mg astilbin/l and 0.04—0.2 mg engeletin/l but were more concentrated in skin extracts. Their significance lies in their possible involvement in "pinkings" of white wines. *C. F. Timberlake (Long Ashton)*

## E. WEINBAU

ALISHEV, KH.: **Unterschiedliche Reaktionen verschiedener Rebsorten auf Hagelschäden** · Particularities observed in the response of different cultivars due to hail damage (bulg. m. russ., franz. Zus.)

Gradinar. Lozar. Nauka (Sofia) **19** (1), 95—102 (1982)

An 4 Tafeltraubensorten, 7 Rotweinsorten und 6 Weißweinsorten wurden Regenerationsvermögen und Fruchtbarkeit der Reben nach schweren Hagelschäden untersucht. Die Reben benötigten eine

Temperatursumme von mindestens 2200—2400 °C, um die Schäden zu überwinden, und hatten sich erst nach weiteren 2 Jahren völlig normalisiert.  
*J. Blaha* (Brno)

**BALLINGER, W. E., NESBITT, W. B.: Postharvest decay of muscadine grapes (Carlos) in relation to storage temperature, time, and stem condition** · Das Faulen von Muskattrauben (Carlos) nach der Ernte in Abhängigkeit von Temperatur, Zeit und Beschaffenheit der Traubenstiele

Amer. J. Enol. Viticult. **33**, 173—175 (1982)

Dept. Hort. Sci., N. C. State Univ., Raleigh, N. C., USA

Muscadine grapes (Carlos) grown in North Carolina, when used as table grapes, had a very short life, mainly as a result of decay. The fungi *Alternaria*, *Aspergillus*, *Botrytis*, *Fusarium*, *Penicillium*, *Melanconium* and *Glomerella cingulata* were found on stored fruit. Experiments were carried out to prolong the storage life of these grapes with the following results: 1. Temperature/time vs. decay: the recommended temperature for storage longer than 1 week is 0 °C. For shorter periods 10 °C is better than 20 °C. — 2. Source of the grapes: difference in % of decay from different sources was due to the degree of fungal infection in the vineyards and the stage of maturity at harvest. — 3. Stem scar condition vs. decay: grapes with torn stem scars decayed faster than intact fruit. Storage of injured grapes at temperatures above 0 °C is not recommended even for short periods.

*S. Guelfat-Reich* (Bet Dagan)

**BECKER, H., SCHENK, W., AGNES, J.: Untersuchungen zur Paraffinierung in der Rebenveredlung** · Investigations on paraffining in bench grafting (m. franz. Zus.)

Wein-Wiss. **37**, 258—274 (1982)

Inst. Rebenzücht. Rebenveredl., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

The chemical and physical qualities required for grafting waxes (penetration, viscosity, permeability; resin and oil content) are described. — 11 grafting waxes are tested as to their aptitude to coat the grafts before callusing or before planting them into the nursery. — The paraffins are most different with regard to the permeability to water; a low solidification point (ca. 60 °C) and a high melting point (ca. 75 °C) are required for good elasticity. The usual dipping time (ca. 1 sec) into 80 °C paraffin causes max. 37 °C within the bud and about 42 °C inside the not isolated shoot (waxing before planting into the nursery). Both temperatures are considered to be harmless; however, to avoid burns in the latter case, it is important to cool off the grafts by dipping them immediately into tap water. — Authors maintain that paraffining before callusing, as usual with the conventional planting procedure, is not necessary when using the new planting system with foil.

*B. H. E. Hill* (Lauffen)

**BLOUIN, J., DESENNE, A.: Nouvelle méthode rapide de dosage du gaz carbonique dans les vins tranquilles** · A rapid new method for analysis of dissolved CO<sub>2</sub> in still wines (m. engl., dt., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) **16**, 33—43 (1982)

Féd. Dept. Cent. Etud. Inform. Oenol., Gironde, Bordeaux, Frankreich

Apparatus developed for analysis of total dissolved CO<sub>2</sub> in biological fluids (Corning 965D) has been applied to such analysis of still wines. The method depends on displacement of dissolved CO<sub>2</sub> by acidification and measurement of conductivity change of a thermistor. The new procedure gives very rapid and reproducible results, with accuracy equivalent to an electrometric reference procedure. Though costly, it is well suited to quality control requirements for many such measures on a routine basis.

*T. C. Somers* (Adelaide)

**BOULAY, H.: Absorption différenciée des cépages et des porte-greffes en Languedoc** · Differences in mineral absorption shown by several varieties and rootstocks grown in Languedoc

Progr. Agric. Vitic. (Montpellier) **99**, 431—434 (1982)

With the help of leaf and petiolar analysis, Author gives the absorption level for P, K, Ca and Mg of several cvs. grafted on SO<sub>4</sub> and of several rootstocks grafted on Grenache. The usefulness of the results for the choice of the rootstock before planting the vineyard is discussed.

*R. Wagner* (Villeneuve-les-Maguelonne)



CHAUVET, S., SUDRAUD, P.: **Relation entre la composition chimique des vins blancs liquoreux et la qualité de la vendange utilisée: l'indice de surmaturation** · Relation between chemical composition of sweet white wines and quality of the grape harvest: index of over-ripening (m. engl., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) 16, 195—205 (1982)

Sta. Agron. Oenol., Univ. Bordeaux II, Talence, Frankreich

13 experimental wines, from Sauvignon and Semillon grapes at 4 stages of mould infection, and 8 cellar wines from grapes of defined quality (Sauternes-Barsac) were analysed. Computer-aided selection of the most significant data in relation to variation in grape quality indicated 14 parameters, these being aspects of acid composition, ion contents, alkalinity of ash. From such data, Authors derived an index of over-ripening ("surmaturation") for each wine. Use of this index permits verification that a wine conforms with regulations concerning its "appellation d'origine".

T. C. Somers (Adelaide)

DARIS, B. T.: **Emploi des herbicides dans les vignobles** · Use of herbicides in vineyards  
Bull. OIV 55, 563—575 (1982) · Vignevini (Bologna) 9 (1—2), 15—19 (1982)

Inst. Vigne, Lycovrissi-Amaroussion, Athen, Griechenland

Besides a survey of the use of herbicides in the viticulture of the world, a summary is given of the types of herbicides: pre-emergence application e.g. atrazine, simazine, linuron; post-emergence application e.g. M.C.P.A., mecoprop; and contact herbicide e.g. diquat, paraquat, as well as the methods of utilization of temporary weed control. Besides a survey of the important vineyard weeds, the influence of weed control on the grapevine, on the soil (for example: erosion), the economical aspects and the prospects of chemical weed control are discussed.

E.-H. Rühl (Hohenheim)

DZHAFAROV, M. I., SHAKURI, B. K., NADZHMEDDINOV, M. N.: **Influence of mineral fertilizers on the biological activity of the soil and the yield of grapevines** · Einfluß von Mineräldüngern auf die biologische Aktivität des Bodens und auf den Ertrag der Rebe (russ.)

Sadovod. Vinogradar. i Vinodel. Moldavii (Kishinev) 37 (5), 39—40 (1982)

On a soil with medium N supply and a low content of water-soluble P and K, the number of microorganisms could be increased by use of mineral fertilizers (NPK), thus, increasing the grape yield and the must quality. N fertilizers influenced more the increasing of microorganisms, whereas P and K fertilizers had a greater influence on the grape yield. Most microorganisms were found in the variant: N<sub>200</sub>P<sub>200</sub>K<sub>200</sub>, the highest grape yield in the variant: N<sub>90</sub>P<sub>200</sub>K<sub>200</sub>. The lowest effect was achieved by the variant: N<sub>90</sub>P<sub>90</sub>K<sub>90</sub>.

M. Milosavljević (Belgrad)

EL-ZEFTAWI, B. M.: **Effects of ethephon on cluster loosening and berry composition of four wine grape cultivars** · Wirkung von Ethephon auf Traubenauflockerung und Beereninhaltsstoffe bei vier Keltertraubensorten

J. Hort. Sci. (Ashford) 57, 457—463 (1982)

Sunraysia Hort. Res. Inst., Irymple, Vic., Australien

Ethephon used as an abscission agent on grapes gave variable responses on 3 cvs. in 2 and on a 4th in 1 season. Measurements made after shaking of vines by hand or of bunches with a laboratory shaker showed that ethephon at 1000—2000 ppm loosened bunches in one and berries in both seasons. [No proof is provided that the recovery or quality of machine-harvested grapes would similarly be improved. This and earlier experiments indicate that advances in this potentially promising field will depend on a better understanding of the mechanism of fruit abscission in *Vitis vinifera*. — Ref.]

P. May (Adelaide and Dijon)

FLANZY, C., ANDRE, P., BLANC, R., BURET, M., CAMBROY, Y., PELISSE, C., RIQUET, A. M.: **Conservation de la variété de raisin de table Ribol** · Preservation of the table grape cv. Ribol

Ribol

Progr. Agric. Vitic. (Montpellier) **99**, 500—507 (1982)  
Sta. Technol. Prod. Vég., INRA, Avignon, Frankreich

The table grave cv. Ribol was developed by the research workers of INRA. It is a late cv. (harvested in October) and resistant to bruising. Experiments were carried out to examine the suitability of this cv. for long term storage, comparing it to Alphonse Lavallée. The grapes were harvested earlier than usual and packed in closed polyethylene bags containing SO<sub>2</sub> generators (Paulin's system), and stored at +1 °C. After 5 months storage and 8 d shelf life, the fruit was found to be still in good condition — in comparison with Alphonse Lavallée, which can be stored successfully for only 2.5 months. Physiological changes occurred during storage in closed polyethylene bags: increase in the respiratory quotient, diminution in acidity (especially malic acid) and a small decrease in sugar content. This change in composition had a positive effect on fruit taste.

*S. Guelfat-Reich* (Bet Dagan)

FREGONI, M., FAUSTINI, R.: **Investigation on antagonism between quantity and quality in various training systems of Italian grapevines** · Untersuchung zum Menge-Güte-Verhältnis bei verschiedenen Erziehungssystemen italienischer Reben (ital. m. engl. Zus.)

Vignevari (Bologna) **9** (7—8), 25—31 (1982)

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

The investigation was based on results of a survey of 3000 vineyards in 14 Italian regions, with 52 cvs. and 12 training systems. Training system, ecological factors, technological methods and above all plant density affected sugar concentration with different yields per vine and per ha. The generally established ratio between quantity and quality of grapes was confirmed. The reduction in sugar concentration is not always a sufficient indicator of the complex process of decline in organoleptic characteristics of the wine. With red cvs. — over a certain production limit — there is a decrease in dry extract, anthocyanin and aroma.

*P. Spiegel-Roy* (Bet Dagan)

GAIRIYAN, M. A.: **Chlorophos influence on enzymatic activity of vineyard soil** · Einfluß von Chlorophos auf die enzymatische Aktivität des Weinbergbodens (russ. m. armen., engl. Zus.)

Biol. Zh. Armenii (Erevan) **35** (11), 922—925 (1982)

The consequences of frequently used herbicides in vineyard soils are investigated. After 2 sprays with 0.2 % chlorophos, invertase activity was reduced by ca. 30 % and phosphatase activity by ca. 20 %. 14 d after spraying, the biological activity in the soil was normalized.

*J. Blaha* (Brno)

GENG, S., SCHNEEMAN, P., WANG, W.: **An empirical study of the robustness of analysis of variance procedures in the presence of commonly encountered data problems** · Eine empirische Untersuchung der Aussagefähigkeit von Varianzanalysen bei unter Grenzbedingungen auftretenden Datenproblemen

Amer. J. Enol. Viticult. **33**, 131—134 (1982)

Dept. Agron. Range Sci., Univ. California, Davis, Calif., USA

Computer generated Monte Carlo results are graphically presented for a study of the robustness of the F-test under simultaneous violations of assumptions of homogeneity of variances and normality of data distribution. The efficiency of weighting (WAOV), ranking (RAOV) and arcsine square root (ARCAOV) transformations were compared with the ordinary AOV in a series of one-way classification experiments. The AOV was robust against deviations from normality for all distributions considered. For other than normal distributions the WAOV was best in all situations at maintaining type I error rates in the presence of simultaneous non-normality and heterogeneity when the variances differed among treatments. In the case of heterogeneity of variance, the AOV was more powerful than the other procedures in a wide range of parent populations. Authors conclude, "thus, routine tests for the purpose of performing AOV are not necessary".

*G. C. Ashton* (Guelph)

GIL DE BERNABÉ, A. G., GIL MONTREAL, M.: **Sur la distribution du système racinaire de la vigne** · About distribution of the vine root system (span. m. engl., franz. Zus.)

An. Inst. Nacl. Invest. Agrar., Ser. Agric. (20), 35—67 (1982)

Le système racinaire de 32 souches de caractéristiques différentes a été étudié. Les racines ont été pesées et mesurées jusqu'à une profondeur limite de 5,8 m. — C'est à une profondeur de 50—60 cm, où s'implantent et s'étalent les racines, que se situent les mesures les plus élevées; la plus grande longueur trouvée étant de 12 m et le plus grand diamètre de 31 mm près du tronc. Une souche (porte-greffe 420-A) âgée de 52 ans a fourni 7 kg de racines (28 000 kg/ha) mesurant au total plus de 600 m de longueur. — Il semble que les éléments les plus importants pour le développement des racines sont l'humidité et les caractères du sol. En outre, le système racinaire paraît s'établir pendant les premières années de la vie de la vigne, indépendamment de l'évolution future de ses mensurations.  
M. Broquedis (Talence)

KIEFER, W., EISENBARTH, H. J., WEBER, M.: **Ergebnisse und Erfahrungen zur Umkehrerziehung im deutschen Weinbau** · Results and experiences with regard to one-wire-trellising system in Germany  
Dt. Weinbau 38, 161—166 (1983)

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

This trellising system differs from the usual Lenz-Moser-system in higher trunks and the fact that upper wires are missing. Therefore, the shoots hang down freely. The vines are trained about 1.7 m high on 1—2 cordon-arms pruned on canes or spurs. The advantage is a simplification of the support system and, concerning pruning, reduced working hours. In the case of high vigour of the stock, there are several disadvantages: too many shoots on the lee side as a consequence of unfavourable distribution of the shoots. On the lee side also a large density, a higher risk to diseases, and a diminution of quality can be observed, and the harvest is very disagreeable.

G. Mayer (Klosterneuburg)

KRAUS, V.: **Vertiko — Versuch zur Lösung gegenwärtiger Probleme der Hochkultur** · Vertico — an essay to solve the problems concerning high trellising systems  
Dt. Weinbau 37, 1549—1552 (1982)

Vinar. Ústav VSZ, Lednice na Morave, CSSR

Author describes a trellising system for training vines on vertical cordon arms arranged upon tier (intervals 30 cm). Pruning of spurs of 2 nodes and pinching twice a season are necessary to prevent polar growth. Especially cvs. with fertile basal nodes on the shoots are qualified for this system (Sylvaner, Veltliner). This trellising system permits distribution of the young shoots, preventing the shading of the leaves in the inner parts of the vine, and makes mechanical harvesting easier.

G. Mayer (Klosterneuburg)

LEONHARDT, A.: **Die Bodenpflege aus ökologischer und biologischer Sicht** · Soil cultivation from an ecological and biological point of view

Bad. Winzer (11), 493—496 (1982)

To preserve soil fertility, a high humus content is very important. Humus improves the soil structure, pore volume and soil porosity and in this way it prevents soil slaking, soil compaction and chlorosis. To guarantee a sufficient humus content, the supply of organic material (e. g. manure, sewage sludge, compost, marc and green cover) is necessary. The high content of heavy metals in sewage sludge and sewage sludge compost often does not allow the application.

E.-H. Rühl (Hohenheim)

LIUNI, C. S., ANTONACCI, D.: **Der Einfluß von Bewässerungstechnik und Düngung auf die Rebknospen im heiß-ariden Süden. IV. Mitt.: Einfluß der Dichte der Spritzdüsen auf Güte und Menge des Erntegutes** · The effect of irrigation technique and fertilizing on grapevine buds in warm-arid southern regions. Note IV: Influence on the density of spraying jets on quality and quantity of the vintage (ital. m. engl., franz. Zus.)

Riv. Viticolt. Enol. (Conegliano) 35, 202—207 (1982)

Ist. Sper. Viticolt., Bari, Italien

Eine apulische Rebanlage mit den Sorten Sangiovese und Montepulciano auf 157/11 C. wurde mit 1300 oder 2600 m<sup>3</sup>/ha tropfbewässert. Ertrag und Mostqualität wurden durch die Verteilung des Wassers beeinflusst: Die besten Ergebnisse wurden bei geringer Düsendichte mit großem Wasserdurchlaß erzielt.  
A. Scienza (Mailand)

LIUNI, C. S., ANTONACCI, D., COLAPIETRA, M.: **The effect of irrigation technique and fertilizing on grapevine buds in warm-arid southern regions. Note II: Influence of the frequency of irrigation on the water supply required in a vineyard** · Der Einfluß von Bewässerungstechnik und Düngung auf die Rebknospen im heiß-ariden Süden. II. Mitt.: Einfluß der Häufigkeit der Bewässerung auf die in einer Rebanlage erforderliche Wasserversorgung (ital. m. franz., engl. Zus.)  
Riv. Viticolt. Enol. (Conegliano) **35**, 192—196 (1982)  
Ist. Sper. Viticolt., Bari, Italien

In order to compare the effect of weekly or biweekly trickle irrigation on the "vitality" of vine buds, an experiment was performed in 2 vineyards situated in southern Italy. It was assumed that "vitality" of the buds depends on the bud weight, and the optimum weight for maximum "vitality" was found to be ca. 500 g. The vineyards were irrigated 24 or 48 times between the end of March and September with a total water supply equal to 1300 m<sup>3</sup>/ha/year. Emitters were spaced every 9 m<sup>2</sup>, with 1111 nozzles/ha, and an emission of 4 l/h each under a pressure of 1.5 atm. — The results showed that in the rather dry climate of southern Italy, a better "vitality" of buds was obtained by weekly rather than biweekly trickle irrigation. *S. Guelfat-Reich (Bet Dagan)*

LIUNI, C. S., COLAPIETRA, M., ANTONACCI, C., PALUMBO, G.: **Der Einfluß von Bewässerungstechnik und Düngung auf die Rebknospen im heiß-ariden Süden. I. Mitt.: Einleitende Betrachtungen** · The effect of irrigation technique and fertilizing on grapevine buds in warm-arid southern regions. Note I: Introductory considerations (ital. m. engl., franz. Zus.)  
Riv. Viticolt. Enol. (Conegliano) **35**, 182—191 (1982)  
Ist. Sper. Viticolt., Bari, Italien

Aufgrund der Klimadaten 1977—1981 (Niederschläge, Wasserverdunstung, Luftfeuchtigkeit, Wind, Durchschnittstemperaturen, Sonneneinstrahlung) und Feuchtigkeitsmessungen des Bodens ermitteln Verff. den Mindestwasserbedarf für die Ertragssicherung. Von den Bewässerungssystemen erweist sich die Tropfbewässerung als die bestgeeignete. *A. Scienza (Mailand)*

NELSON, K. E.: **Factors affecting removal of sulfur dioxide from atmospheres of table grapes** · Voraussetzungen für die Entfernung von Schwefeldioxid aus der Lagerungsatmosphäre von Tafeltrauben  
Amer. J. Enol. Viticult. **33**, 61—66 (1982)  
Dept. Viticult. Enol., Univ. California, Davis, Calif., USA

It is standard practice to fumigate table grapes after harvest with SO<sub>2</sub> to prevent rot development. During storage, the treatment must be repeated weekly. During treatment only a part of the SO<sub>2</sub> is removed from the storage atmosphere by the fruit and lugs, but a considerable amount of the gas remains. This residual of SO<sub>2</sub> in the room can be dangerous for the personnel, and can cause bleaching to the berries. Therefore, a scrubber, which reduces the SO<sub>2</sub> concentration, is needed. The above paper describes a portable scrubbing unit, the conditions needed for its efficiency, and the effect of several factors on the time required for removing the SO<sub>2</sub> from the room. *S. Guelfat-Reich (Bet Dagan)*

SANTORO, M.: **Enological investigation on some recently introduced grape cultivars in southern Italy. Note II: The wines** · Önologische Untersuchung einiger in Süditalien neu eingeführter Rebsorten II. Mitt.: Die Weine (ital. m. engl. Zus.)  
Riv. Viticolt. Enol. (Conegliano) **35**, 465—473 (1982)  
Ist. Ind. Agrar., Univ. Bari, Italien

The aim of this research was to ascertain if high quality white wines can be produced in southern Italy, contrary to the generally accepted opinion. Cvs. with a pronounced varietal aroma were used. The majority of these cvs. (12) were of German origin, 5 from Italy, 2 from France and 1 from Austria. Supplementary irrigation proved helpful. Most wines had over 10 % alcohol. Some wines had residual sugar above 2 g/l. For high quality, grapes had to be harvested so as to yield a must with a pH below 3.2 and acidity over 8.5 g/l, expressed as tartaric acid (early harvest). With later harvests, malo-lactic fermentation, loss of aroma, taste freshness and colour are found. With early harvesting and proper vinification, some high quality wines could be produced. *P. Spiegel-Roy (Bet Dagan)*

SCALABRELLI, G., GRASSELLI, A., CONTI, G.: **Productivity of Sangiovese buds pruned by the modified double Guyot system** · Produktivität von Knospen der Sorte Sangiovese bei Schnitt nach dem modifizierten doppelten Guyot-System (ital. m. engl. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 441—455 (1982)

Ist. Sper. Viticolt., Conegliano, Italien

In a 3-year trial with the Sangiovese cv. on Kober 5BB pruned by the double Guyot system (2 canes with 7 buds each plus 2 spurs with 2 buds each), the productivity of buds was investigated. Real fertility was low on the 1st bud of the cane. Many unproductive nodes were found in position 4—7, due to lack of fruit buds. Leafing out was very good on spur buds. Productivity (yield of grapes/bud) was highest on the second spur bud, as well as production efficiency (sugar/bud). The study points to the possibility of spur pruning in Sangiovese cv. This type of pruning would also mean lower cost.

*P. Spiegel-Roy* (Bet Dagan)

SCORDAMAGLIA, G., STRAMAGLIA, L.: **Investigations on viticulture and vinification, and their levels of commercialization in Spain, South Africa, and Israel** · Untersuchungen zu Weinbau und Weinbereitung und deren Vermarktung in Spanien, Südafrika und Israel (ital. m. franz. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 364—375 (1982)

Ist. Sper. Viticolt., Bari, Italien

Because of the difficult situation of grape production and the old-fashioned structures of trading in southern Italy (Mezzogiorno), Authors visited vine districts with analogous climates and conditions in Spain (Valencia, Alicante, Murcia), South Africa, and Israel (costal region south of Tel Aviv, Negev, Beer Sheba, and Shefela). — Besides the viticultural practices and the methods of wine making, the organizations and efforts of the markets were studied. The informations obtained are summarized in this report. It is supposed that the acquired knowledge contributes decisively towards the solution of many problems of grape production in southern Italy.

*B. H. E. Hill* (Lauffen)

SORBA, A.: **Résultats des essais de surgreffage aérien de la vigne, réalisés en Corse en 1982** · Results of experiments on field grafting to change varieties realized in Corsica in 1981 Progr. Agric. Vitic. (Montpellier) **99** (9), 235—240 (1982)

Owing to expense and skill required when making and handling bench grafts, experiments were carried out to change cvs. of established vineyards. The methods used were: T-grafting and cleft grafting. — **T-grafting**: The best average percentage of success (93.3 %) could be obtained, when grafting during the blooming period and removing the top of the stock immediately. The application of grafting wax upon the trunk had no effect. Assays with girdling the stems or shoot pinching resulted in bad graft unions and weak shoot growth; the ranges of success were about 35 %. — **Cleft grafting**: This way of grafting had been carried out 4 weeks earlier than the former. It succeeded in a percentage of 71.9 %. — Besides a short description of the graft conditions and methods, Author specifies the expenditures of work and money.

*B. H. E. Hill* (Lauffen)

SCHALLER, K.: **Düngung im Weinbau unter dem Gesichtspunkt möglicher Umweltbelastung und optimaler Ernährung der Reben** · Fertilizer application from the aspect of possible influences on environment and optimal vine nutrition

Dt. Weinbau **37**, 1110—1122 (1982)

Inst. Bodenk. Pflanzenernähr., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

Fertilizer application and soil cultivation are necessary to stabilize the soil fertility and the agricultural ecosystems. A high yield in the modern viticulture is only possible with fertilizer or manure application; on the other hand, higher fertilizer applications can contaminate the groundwater and, in this way, influence other ecosystems. Such secondary effects of fertilizer applications can be avoided by adapting the cultivation to local conditions and climate and by attending to the nutrient requirement; for example to produce 100 dt grapes, only 18.0 to 23.0 kg N are necessary.

*E.-H. Rühl* (Hohenheim)

SCHNEIDER, W., STAUDT, G.: **Die adjustierte Blattanzahl: ein Maß für die Blattbildungsintensität** · The adjusted number of leaves: a unit of measure for the intensity of leaf production (m. engl., franz. Zus.)

Wein-Wiss. **37**, 363—367 (1982)

Staatl. Weinbauinst., Freiburg/Br.

The intensity of growth is depending on several factors as length of the shoot, length of the internodium, number of leaves and leaf area. The number of leaves is the parameter of the capability of the development of leaves and thus of assimilation. But the number of leaves on the vine is a variable unit of measure. Therefore, Authors calculated the adjusted number of leaves. By calculating the number of leaves/1 m shoot length, correlations between the shoot length and the number of leaves can be eliminated. They calculated the mean length of internodium for 6 cvs. How the parameter is calculated is shown by an example.

G. Mayer (Klosterneuburg)

STOEV, K., SLAVTICHEVA, T.: **La photosynthèse nette chez la vigne (*V. vinifera* L.) et les facteurs écologiques** · Net photosynthesis of the grapevine (*V. vinifera* L.) and ecological factors (m. engl., dt., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) **16**, 171—185 (1982)

Nauchnoizsled. Inst. Lozar. Vinar., Pleven, Bulgarien

This report covers photosynthesis measurements in the field and laboratory using infra-red gas analyses. The cvs. studied were Cabernet Sauvignon and Rkatsiteli. Photosynthesis is light saturated at  $25 \cdot 10^3$ — $35 \cdot 10^3$  lx in the laboratory, but is higher outdoors. Photosynthesis was maximum at 25 °C air temperature, but the temperature optimum was less later in the season. Maximum photosynthetic rate was at 800 ppm CO<sub>2</sub>, which was also noted in biomass accumulation. When the soil dried to less than 70 % field capacity, the rate of photosynthesis also decreased. At higher air temperatures, photosynthetic rate is more affected by soil water deficit. Diurnal patterns of photosynthesis were related to levels of temperature and soil moisture status.

R. E. Smart (Hamilton)

STRAKHOV, V. G.: **Über Möglichkeiten der Anwendung des Spurenelements Vanadium im Weinbau** · Applicability of the trace element vanadium in viticulture (russ.)

Sadovod. Vinogradar. i Vinodel. Moldavii (Kishinev) **37** (3), 31—32 (1982)

Vanadium sulphate and sodium Vanadate, both in a concentration of 0.05 % together with Bordeaux mixture, were used for grapevine treatment in 2 periods: before blooming and during fruit formation. 2-year treatment resulted in increased grape yield (3.8—6.1 %) and sugar content in the grapes (0.6—0.9 %). The total acid content was decreased, but the shoot growth and ripening were improved. Better results were obtained by use of sodium Vanadate, which is cheaper than vanadium sulphate, too.

M. Milosavljević (Belgrad)

URETA, F., YAVAR, O. L.: **Influence de quelques pratiques culturales sur la qualité des raisins** · The influence of some vine management techniques to improve grape quality (m. engl., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) **16**, 187—193 (1982)

Univ. Cat. Chile, Santiago, Chile

In order to obtain an increase of wine quality in the particular conditions of the irrigated Chilean vineyard, an experiment is reported involving 3 factors: irrigation, N fertilization and thinning out of leaves at véraison.

R. Wagner (Villeneuve-les-Maguelonne)

WEINSTOCK, L., KENDER, W. J., MUSSELMANN, R. C.: **Microclimate within open-top air pollution chambers and its relation to grapevine physiology** · Das Mikroklima in oben offenen Kammern zur Untersuchung des Einflusses der Luftverschmutzung und seine Beziehung zur Rebphysiologie

J. Amer. Soc. Hort. Sci. **107**, 923—929 (1982)

Dept. Pomol. Viticult. N. Y. State Agricult. Exp. Sta., Cornell Univ., Geneva, N. H., USA

Measurement of air pollution effects on vines and grapes requires chambers to enclose vines. Chamber effects on microclimate are reported. At Fredonia, N. Y. own-rooted, mature Concord

vines, with row  $\times$  vine  $\times$  height spacing of 2.7  $\times$  2.4  $\times$  1.8 m, were used. At 1 per chamber, 12 vines were in open-top chambers 3 m diameter and 2.7 m tall. Walls were of 2, 1.4 m wide panels of transparent 10-mil polyvinyl chloride; lower panel was double-wall; upper panel was single. A blower circulated air at 70.8 m<sup>3</sup>/min; air exited the open top at 3–4 volume changes/min. In June–Sept. the chamber effects, in relation to non-chambered situations, were: 1. air temperature: +0.4 to +3.7 °C, when sunny, with max effect when solar irradiance and air temperature were near max, and <0.5 °C when not sunny; 2. dew point: to +2 °C, when sunny; 3. vapor pressure deficit: +1 to +7 mb, when sunny; 4. rel. humidity: –5 % to –10 %, when sunny; 5. solar irradiance and PAR, as % of ambient: –10 (June) to –24 (Aug.), when sunny, near zero when cloudy; 6. wind velocity: zero, up to 1.5 m height but doubled at 2.2 m height; 7. soil water, stomatal resistance, and leaf water potential: no effect; 8. leaf temperature: to +3.1 °C due to the chamber air temperature increase. Seasonal and diurnal trends are presented. The interpretations are useful.

*N. J. Shaulis* (Geneva, N. Y.)

## F. BODEN

SEGUIN, G.: **Influence des terroirs viticoles sur la constitution et la qualité des vendanges** · Effects of viticultural habitats on the composition and quality of the vintage  
Bull. OIV 56, 3–18 (1983)

Inst. Oenol., Univ. Bordeaux II, Talence, Frankreich

Environmental factors, e.g. soil and climate, may explain only to some extent the alterations of quality at obviously similar habitats. In the Bordeaux area the effects of different soil water conditions were shown to decrease wine quality, excessive water in the soil increasing the acidity and diluting phenolic compounds, water deficits in the soil causing problems especially in recently planted vineyards. The soils of the Grands Crus seem to benefit by a regulation system in the soil avoiding excessive soil water or drought, thus permitting the production of quality wines even under unfavorable climatic conditions.

*H. Düring* (Geilweilerhof)

## G. ZÜCHTUNG

BLAICH, R., BACHMANN, O., STEIN, U.: **Causes biochimiques de la résistance de la vigne à *Botrytis cinerea*** · Biochemical factors in the resistance of vines to *Botrytis cinerea*  
Rev. Oenologues (Macon) 8 (26), 11–12 (1982)

BFA f. Rebenzücht. Geilweilerhof, Siebeldingen

The production of condensed tannins and phytoalexins by more than 100 different vine varieties (European, American and interspecific hybrids) has been examined. In particular, the elicitation of phytoalexins offers an effective method for the selection of disease-resistant vines, since the production of resveratrol (a phytoalexin-like compound) and resistance to *Botrytis cinerea* are correlated. However, phytoalexins and tannins are not the only factors responsible for resistance.

*P. Langcake* (London)

MOIROUD, A., BERGER, J.-L., NIGAY, P., THOMAS-ROCHE, A.: **Sélection clonale du Gamay en Beaujolais en 1981** · Clonal selection of Gamay in the Beaujolais area in 1981  
Vignes et Vins (Paris) 311, 6–13 (1982)

New clones were taken out this year by Sicarex-ITV-Beaujolais of 7 places distributed over the whole cultural area of this cv.: they are to be submitted to routine selection processes whose details are recalled here. From the data collected on the clones under study since several years, it appears that 4 out of the seven, which are yet homologated, are better this year and that 3 new ones at least are noteworthy. All useful steps are taken in order to quickly develop this certified material. For example, only 20 % of the Rhône nurseries were planted with homologated clones in 1981, whereas Sicarex-ITV-Beaujolais will be able to supply the whole Rhône-Alpes area with certified Gamay within 2–3 years.

*J. P. Doazan* (Bordeaux)

SCHNEIDER, W., STAUDT, G.: **Über die Variation einiger Merkmale von *Vitis vinifera*** · Variation of some characteristics of *Vitis vinifera* (m. engl., franz. Zus.)

Mitt. Klosterneuburg **32**, 193—198 (1982)

Staatl. Weinbauinst., Freiburg/Br.

Results on the variation and spread of 11 characteristics of 6 cvs. are given. The dependence on environmental influences was obtained by variance analysis and taking into consideration 10 locations and 2 years. Nearly all viticulturally important characteristics are affected by several genes. — The main reason for the total variability is caused by the genotype of the cv. The environment affects more significantly only the characteristics "length of the shoot", "area/leaf" and "acidity". The characteristics "fresh weight/berry" and "acidity" depend — to a large degree — on the year. With regard to the growth criterias, there is always a significant interaction component locations × years. The presence of the significant interaction component cultivars × locations × years was proved with all characteristics.  
B. H. E. Hill (Lauffen)

VALLANIA, R., RADICATI, L., SACERDOTE, S., ME, G.: **Untersuchungen über den Ertrag und die vegetativen Merkmale zweier Mutantenstämme von Barbera** · Investigations on yield and vegetative characteristics of two mutants, cv. Barbera (ital. m. franz. Zus.)

Vignevisini (Bologna) **9** (10), 23—27 (1982)

Two mutants were obtained by gamma irradiation of Barbera buds. One of them was tetraploid and the other was a 2n-4n periclinal chimera. Both had a lower productivity but larger berries with a thicker skin.  
R. Blaich (Geilweilerhof)

ZANKOV, Z., GEORGIEV, Z.: **Investigations on the biology of grapevines, cv. red Muscat, from intervarietal crossings and free pollination** · Recherches sur la biologie des plants de vigne du cépage Muscat rouge, issus d'hybridation intervariétale et de pollinisation libre (bulg. m. russ., franz. Zus.)

Gradinar. Lozar. Nauka (Sofia) **19** (3), 68—73 (1982)

Vissh Selskostop. Inst. "V. Kolarov", Lozaro-Gradinar. Fak., Plovdiv, Bulgarien

The flowers of the cv. red Muscat were pollinated with the pollen of very different cvs. (Riesling, Sauvignon, Muscat Ottonel). In the 2nd year, the seedlings were analysed in detail concerning the origin of the flowers and the growth responses. It was found, that the free-pollinated seedlings showed distinctly poorer growth activity. In case one of the parents was of strong and the other of poor growth, the majority of seedlings in the resulting populations was of poor growth capacity. The beginning of the fructification depends not on the growth activity, but primarily on the fertility degree of both parents.  
J. Blaha (Brno)

## H. PHYTOPATHOLOGIE

ARUTYUNYAN, E. A.: **Effect of hail on fertility of grapevines** · Einfluß von Hagel auf die Fruchtbarkeit von Reben (russ. m. armen., engl. Zus.)

Biol. Zh. Armenii (Erevan) **35** (11), 905—909 (1982)

The potential fertility (PoF) (number of flowers in winter buds) of hail-damaged grapes (in June, cv. Pinot noir in France) was only 73 % of the PoF in undamaged control plants. The practical fertility (PrF) (flowers in germinating buds) was only 56—59 % of the PrF in the control. On shoot sections it was shown that in hail-damaged plants phloem and xylem tissues were destroyed and rebuilt only slowly.  
I. Tichá (Prag)

BAILLOD, M., SCHLAEPFER, R.: **Technique simplifiée de contrôle pour l'acarien rouge (*P. ulmi* KOCH) et les vers de la grappe (1<sup>re</sup> génération)** · A simplified method of checking the red spider mite (*P. ulmi* KOCH) and the grape moths (first generation) (m. franz., dt., engl. Zus.)

Rev. Suisse Viticult. Arboricult. Hort (Changins) **14**, 211—125 (1982)

Sta. Féd. Rech. Agron. Changins, Nyon, Schweiz



Methods of sequential sampling for red spider mite on fruit trees and grapevine, and for grape moths of first generation, are described in relation to the tolerance thresholds used in Switzerland. Every farmer can choose a high or a low threshold according to the danger due to each parasite in relation to vigour of the plants. Precautions are to be taken when sampling to avoid that any focus can escape. Sequential sampling leads to the same conclusions and decisions as the normal methods. It also gives much security and in many cases it requires less observation work.

*J. P. Doazan (Bordeaux)*

**BRELIE, D., VON DER, NIENHAUS, F.: Investigations on the etiology of grapevine leafroll disease · Untersuchungen zur Ätiologie der Blattrollkrankheit der Weinrebe (m. dt. Zus.)**

Z. Pflanzenkrankh. Pflanzensch. **89**, 682—684 (1982)

Inst. Pflanzenkrankh., Univ. Bonn

Treatment of leafroll-infected grapevines during 11 months with tetracycline and penicillin did not suppress the symptoms, and the agent of the disease was not eliminated. Examination of sections stained with DAPI (4'-6'-diamidino-2-phenylindole) under fluorescence microscope did not reveal extranuclear DNA in the phloem or xylem of diseased plants. No procaryotic cells were found in electron microscope sections of infected plants. Authors conclude that neither mycoplasma-like nor rickettsia-like organisms or other similar procaryotes are associated with this disease. Thread-like particles morphologically similar to closteroviruses were found in electron microscope preparations from phloem tissue of diseased plants as well as in those of healthy plants. Although Authors consider grapevine leafroll as a virus disease, they believe it is unlikely that these particles are the agent of the disease.

*R. Bovey (Nyon)*

**BRIOZZO BELTRAME, J., CARBONELL BRUHN, J.: Development of Phylloxera infestation (*Phylloxera vitifoliae* FITCH; Homoptera: Phylloxeridae) on grapevine leaves in Uruguay; · Entwicklung des Befalls durch die Blatttreblaus (*Phylloxera vitifoliae* FITCH; Homoptera: Phylloxeridae) in Uruguay (span. m. engl. Zus.)**

Rev. Tec. (Montevideo) (52), 35—41 (1982)

The direct-hybrid grapes started to being cultivated since 1960 and are so much affected by phylloxera that frequently it is necessary to control it. This has determined the conduction of local studies so as to establish how foliage infestations develop. The first galls caused by this insect are detected by the end of October. Foliage infestations by phylloxera start to be economically important according to the years, in early December, reaching the critical point in January.

*J. P. Doazan (Bordeaux)*

**CHARLES, J. G.: Economic damage and preliminary economic thresholds for mealybugs (*Pseudococcus longispinus* T-T.) in Auckland vineyards · Wirtschaftlicher Schaden und vorläufige ökonomische Schadenswellen für Schmierläuse (*Pseudococcus longispinus* T-T.) bei Rebanlagen in Auckland**

N.Z. J. Agricult. Res. **25**, 415—420 (1982)

Entomol. Div., DSIR, Auckland, Neuseeland

The damage supposedly caused by mealybugs (*Pseudococcus longispinus*) to vineyards in Auckland, New Zealand was investigated. Only 1 of the 4 possible types of damage was found to be of economic importance, viz. the effect of sooty mould on wine quality. The economic injury level and economic thresholds of mealybug populations were determined. Sampling for mealybugs to determine economic thresholds is considered impractical on a commercial scale. Suggestions are made for the chemical control of mealybugs and the timing of insecticide applications. Early sprays are more effective than sprays later in the season and should be applied if any mealybugs are found in the vineyard at the previous harvest or during pruning.

*P. C. Smith (Stellenbosch)*

**CHKHUBIANISHVILI, Ts. A.: Die Entwicklung der Virusinfektion bei Traubenmotten · The development of virus infection in the grape berry moth (russ. m. grus., engl. Zus.)**  
Soobshch. Akad. Nauk Gruzinsk. SSR (Tbilisi) **106**, 401—403 (1982)

*Lobesia botrana* SCHIFF. ist in Grusien virusfrei. Deswegen wurden Versuche zur biologischen Bekämpfung des Heu- und Sauerwurmes mittels einer Virusinfektion angelegt. Hierbei wurde die

Virulenz des aus *Adoxophyes orana* F. R. (Lepidoptera: Tortricidae) isolierten *Baculovirus orana* ОНО, *et al.* bei *Lobesia botrana* geprüft. Die Infektion erfolgte in der 3. Generation der Raupen durch die Nahrungsaufnahme (Virussuspension der Gescheine und Beeren) und wurde elektronenmikroskopisch untersucht. 3—4 d nach der Infektion werden die grün-gelben Raupen weiß-gelb. Zu diesem Zeitpunkt füllt sich der Körper mit granulösen Kapseln, die je 1 Virusstäbchen enthalten. Nach 6—7 d sterben die Raupen ab. Das Virus kann zusammen mit bakteriellen Präparaten angewandt werden.  
D. Pospíšilová (Bratislava)

DIETER, A.: **Versuche zur Bekämpfung bodenbürtiger Schaderreger vor der Neupflanzung von Ertragsreben** · Field trials for the control of soil-born pathogens before new planting of grapes (m. engl. Zus.)

Wein-Wiss. 38, 34—40 (1983)

Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

In field trials, the effect of Aldicarb on nematodes and the effect of Methylbromide, Dichloropropene and Dichloropropene and Methylisothiocyanate on nematodes and soil fungi were tested. Methylbromide had the best nematocidal effect. The efficiency of Aldicarb was considerably less. Methylbromide showed also good herbicidal and fungicidal effects and improved plant growth. However, due to the high costs, its use will be restricted to problematic areas where other nematocides cannot be applied satisfactorily.  
B. Weischer (Münster)

FOURNIOUX, J. C., BESSIS, R.: **Analyse des nouveaux systèmes de corrélations de croissance entre bourgeons s'établissant après une grêle chez la vigne** · Studies on new growth correlation systems between buds being established after a hailstorm in grapevines (m. engl., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) 16, 149—163 (1982)

Lab. Bot. Appl., Fac. Sci., Dijon, Frankreich

An uncommonly violent hailstorm broke out over a few Burgundy vineyards early in June 1979, damaging shoots and buds severely. Field observations on the different organs growing anew proved to be perfectly consistent with the classical experimental data on bud physiology. The most conspicuous fact observed was the early shooting, more or less pronounced, of numerous buds of N+2 order, which are usually latent and which are responsible for alterations in the following year's fertility. The study of bud relations should not be considered solely for one category of buds, as there exists an intricate correlation between different categories of buds within one vinestock.  
C. Duménil (Reims)

FURNESS, G. O.: **Use of nematodes to control vine borers** · Anwendung von Nematoden zur Bekämpfung von *Echiomima* sp.

Austral. Grapegrower Winemaker (227), 30 (1982)

The vine borer (*Echiomima* sp.) is a pest of grapevines in South Australia which is not controlled by conventional insecticides. Insect parasitic nematodes in an aqueous solution killed an estimated 80—90 % of borer larvae present in tunnels when sprayed onto infested vines in a vineyard trial. The potential for the commercial formulation of nematodes as biological insecticides to control vine borers and other pests is discussed.  
P. D. King (Hamilton)

GLÉMAS, P.: **Mildiou et Pourriture grise. Des résistances aux fongicides** · Downy mildew and grey mold. Resistance to fungicides

Phytoma (Paris) (343), 27—28 (1982)

In 1981 and 1982, strains of *Plasmopara viticola*, originating from different areas of France, were found to be resistant to the active ingredients metalaxyl and milfurame. The sensitivity of the isolates to these fungicides was tested on leaf discs swimming on fungicide suspensions. The resistant strains showed a high level of irreversible resistance and they were cross-resistant to all acylalanines but not to other fungicides. Measures to prevent a further spread of resistance are discussed. The first *Botrytis* strains resistant to the dicarboximide fungicides were found in 1982. Sensitivity tests performed on agar media showed that the isolates were cross-resistant. The level of resistance seems to be dependent on the number of treatments applied.  
E. Bosshard-Heer (Wädenswil)

GLÉMAS, P.: **L'Oidium de la vigne · Oidium of grapevines**  
 Phytoma (Paris) (342), 31—32 (1982)

During the past 3 years, there has been a resurgence of powdery mildew in French vineyards, attributable to undue delays in the application of the first prophylactic spray; too long an interval between sprays; confusion between the control programmes necessary for powdery mildew on the one hand, and downy mildew on the other, 2 distinct diseases with distinct climatic optima; over-reduction in the volume of sprays and consequent poor coverage of the vine, particularly of the bunch; and over-reduction in the amount of wettable sulphur. Sulphur remains the most effective fungicide when used correctly; either dust at 20—25 kg/ha before flowering and 25—30 kg/ha afterwards; or wettable sulphur formulations at 12 kg/ha. It is important, by treatment at growth stage D, to prevent the appearance of the primary foci of infection when the buds break. The number of subsequent treatments depends on the level of the disease in the preceding crop, and it is important to continue the programme to ensure total coverage of the developing bunch. In Languedoc-Roussillon, combination sulphur-dinocap treatments, started at stage D have given excellent results. The combination permits a reduction in the level of sulphur. New systemic fungicides such as fenarimol and triadimefon show considerable promise.  
 W. R. Jarvis (Harrow)

JÁKÓ, N.: **Erzeugung symptomfreier Pflanzen aus Triebspitzenmeristem blattrollkranker Stöcke bei *Vitis vinifera* L. cv. Blauer Burgunder · Growing of symptom-free plants from shoot tip meristem of *Vitis vinifera* L. cv. Pinot noir affected by leaf roll (m. engl., franz. Zus.)**

Mitt. Klosterneuburg 33, 15—17 (1983)

Forschungsinst. Weinbau Kellerwirtsch., Kecskemét, Ungarn

Vines free of leafroll symptoms were obtained from grapevine plants of Pinot noir affected by leaf-roll, using the shoot tip culture method. Explants 0.5—1.0 mm long, containing the meristematic dome plus 2—4 leaf primordia, were excised aseptically from terminal buds of infected vines and cultured for 9 months on a Murashige-Skoog-Nitsch medium described in a previous paper, the growth hormone content of the medium being progressively reduced. The plantlets obtained were transplanted on a perlite substrate saturated with an inorganic nutrient solution and covered with a glass plate in order to maintain high humidity. Later, they were planted in a mixture of perlite and garden soil (1:3) in the glasshouse, until they could be planted in the field. No symptoms of leafroll were observed on the recovered vines.  
 R. Bovey (Nyon)

MALENIN, I.: **Naphthodinozolemulsion bei der Bekämpfung des bakteriellen Krebses · Naphthodinozol emulsion in the control of the bacterial canker (bulg.)**

Lozar. Vinar. (Sofia) 31 (6), 28—30 (1982)

Inst. Lozar. Vinar., Pleven, Bulgarien

In den Jahren 1979/81 wurden Labor- und Feldversuche angelegt, um die Eignung von Naphthamulgatoren gegen den bakteriellen Krebs zu überprüfen. Neben der Seife (2,6 kg/100 l Erdöl) wurden die Mineralölpräparate Akropal 060 und Veronal N (2 l/100 l Erdöl) mit Erfolg angewandt. Von den geprüften Mitteln bewährten sich die Dinitrokresolpräparate Selinon, Dinozol, Nitrozan und Sandolin. Mit Dinozol wurden Versuche zur Überprüfung der Konzentration von Naphtha und dem Emulgator angelegt. Während der Vegetationsperiode werden die Tumore mit der Lösung bestrichen, nach dem Laubfall und dem Rebschnitt werden die Reben gespritzt. — Bereitung der Emulsion: 2 kg Dinozol 50, Nitrozan 50 oder Sandolin 50 werden mit 4—5 l Wasser separat vermischt. 0,25 l Naphtha wird mit 5 ml Veronal N oder Akropal 060 vermischt. Dieser Emulsion wird 0,25 l Wasser unter ständigem Rühren zugefügt. Zuletzt werden beide Lösungen zusammengemischt.  
 D. Pospíšilová (Bratislava)

MAOTANI, T., TAKAGI, N., TAMURA, F.: **Relationship between drought spot and sun scald of Muscat of Alexandria · Unterschied zwischen der „Trockenfleckenkrankheit“ und Sonnenbrandschäden bei Beeren der Sorte Muskat von Alexandria (japan. m. engl. Zus.)**

Bull. Fruit Tree Res. Sta. (Akitsu, Hiroshima) Ser. E (4), 53—61 (1982)

The initial symptoms of physiological disorders, "Drought spot" or "Sunscald", began with a small pale yellow or yellowish brown spots in the skin of berry. In the progress of these disorders,

"Drought spot" was characterized by remaining sunken brown spots with sharp margin and by depositing a suberin-like substance in the bordering tissue; in "Sunscald", the spot covered a great deal of the berry and the injured berries dropped off before the fruit matured. Sometimes, intermediate symptoms were found which could not easily be distinguished. "Drought spot" resulted from a spell of hot weather at the first half of the second stage of berry growth and "Sunscald" occurred at the latter half of this stage. When the berry in the course of developing to "Sunscald" was cooled, the injured berry remained in "Drought spot" or intermediate symptom. Therefore, it is suggested that these disorders change to "Drought spot" or "Sunscald" by combination of the developmental stage of berry and berry temperature.

R. Isoda (Hiroshima)

NAMESNY, A., FERRER, M., SORIA, J., SCATONI, B.: **Bunch decay of grapevine (*Vitis vinifera* L.) and its consequence on wine (1978—1979 and 1979—1980). I. Chemical and viticultural control** · Traubenfäule bei Reben (*Vitis vinifera* L.) und ihr Einfluß auf den Wein (1978—1979 und 1979—1980). I. Chemische und weinbauliche Bekämpfung (m. engl. Zus.)

Rev. Tec. (Montevideo) (52), 23—33 (1982)

Prevention of damages mainly due to *Botrytis cinerea* was tried on *Vitis vinifera* cv. Semillon by chemicals and/or partial defoliation. The following active ingredients were employed: dicyclidene, glyphophene, vinclozolin and copper oxychloride. Azinphos-methyl was applied to reduce penetration of the decay causal complex, facilitated by damage caused by *Argyrotaenia sphaleropa* MEYRICK. At 1% level, Duncan's test showed significant differences in decay percentage, between the control and the following treatments: azinphos-methyl (0.052% a.i.), dicyclidene (0.75 kg a.i./ha), copper oxychloride (0.24% a.i.) plus defoliation (5 leaves all around each bunch) and vinclozolin (1 kg a.i./ha). No significant differences in decay appeared between treated plots and yield was not affected by defoliation or any other treatment.

J. P. Doazan (Bordeaux)

NAUDIN, R.: **Incidence de la pourriture grise sur la récolte et sur les vins** · Incidence of grey-mould on yield and wines

Vignes et Vins (Paris) (311), 4—5 (1982)

This is the first part of a lecture given at the annual meeting of the National Union of Enologists held in Mâcon (France) on June 17, 18 and 19, 1981, which is dealing mainly with yield reduction due to this disease. *Botrytis cinerea* may contaminate very early the leaves and flower buds at the time of blossom or even before. The young inflorescences, when diseased, may desiccate and fall down. The fungus — being a saprophytic one — develops first on senescent flower parts and then can invade the young berries and stalks. Thus, heavy losses are often due to this disease at this stage. But the berries become much more susceptible to grey-mould after the beginning of ripening ("veraison" stage). The fungus colonizes the whole berry by dissolving the cell membranes with the aid of its numerous enzymes. Some data are reported both upon yield losses before harvest and on must reduction when crushing the bunches.

J. P. Doazan (Bordeaux)

NAUDIN, R.: **Les traitements contre la pourriture grise: Programmes actuels et possibilités d'avenir** · Treatments against grey mold: actual programme and possibilities in future

Vignes et Vins (Paris) (313), 24—29 (1982)

The effectivity of specific botryticides depends on the method of application and the spraying programme. The programme "Standard ITV" recommends applications at different stages of plant development: at the end of bloom, before grape closure, at the beginning of softening of the berries, and 3 weeks before harvest. The results effected with different fungicides applied according to this programme from 1977—1981 are listed. Another programme (15—15) prescribes treatments after the plants have been wet for more than 15 h at temperatures of 15 °C or more. The comparison of the 2 schedules showed that the effectivity of either one depends on the climatic conditions during the vegetation period. In a new attempt to protect the plants effectively while preventing unnecessary treatments the risk of infection is calculated with the help of a biomathematical model developed by ACTA (see STRZYK, *Vitis* 21, 379, 1982). The results achieved in 1980 and 1981 with spraying programmes based on this model were satisfactory.

E. Bosshard-Heer (Wädenswil)

NIENHAUS, F., BRELIE, D. VON DER: **Flavannachweis als Färbeverfahren zur Vorselektion blattrollkranker Reben** · The test of flavan derivatives as a staining method for the preselection of leafroll-diseased grapevines (m. engl. Zus.)

Z. Pflanzenkrankh. Pflanzensch. **89**, 720—729 (1982)

Inst. Pflanzenkrankh., Univ. Bonn

The leaves of leafroll-diseased grapevines contain elevated amounts of flavan derivatives, which may be tested in leaf extracts by staining with p-dimethylaminocinnamaldehyde. This staining method is proposed to preselect diseased plant material for further tests with more exact methods.

R. Blaich (Geilweilerhof)

STELLMACH, G.: **Die Verklonung von Triebspitzen schnell gewachsener Reben zur Eliminierung von NEPO-Viren** · Shoot tip cloning of forced grapevine plants for nepovirus elimination (m. engl. Zus.)

Z. Pflanzenkrankh. Pflanzensch. **89**, 662—670 (1982)

Inst. Pflanzensch. Weinbau, BBA f. Land- Forstwirtschaft., Bernkastel-Kues

Elimination of nepoviruses by means of shoot tip cloning of forced grapevines plants is described. The results indicate that prolonged growth at 30 °C could replace thermotherapy at higher temperature, eliminating the risks of this treatment.

R. Blaich (Geilweilerhof)

STOEVA, R.: **Wirtspflanzen des Bekreuzten Traubenwicklers (*Lobesia botrana* SCHIFF.)**

· Hosts of the grape berry moth (*Lobesia botrana* SCHIFF.) (bulg. m. russ., franz. Zus.)

Gradinar. Lozar. Nauka (Sofia) **19** (2), 83—90 (1982)

Kompleks. Opitna Sta., Sandanski, Bulgarien

Es wurden 9 neue Wirtspflanzen von *Lobesia botrana* SCHIFF. gefunden: *Lonicera tatarica* L., *Rubus caesius* L., *Olea europaea*, *Ligustrum vulgare* L., *Berberis vulgaris* L., *Syringa vulgaris* L., *Ribes nigrum* L., *Cornus alba* L., *Diospyros kaki* L. In Laborversuchen wurden Fruchtbarkeit und morphologische Merkmale im Zusammenhang mit verschiedenen Wirtspflanzen geprüft. An den meisten Pflanzen sind 2 Generationen des Schädling vorhanden. Eine hohe Fruchtbarkeit der Weibchen zeigte sich nach Ernährung der Raupen der 3. Generation mit *Rubus caesius*, *Berberis vulgaris* und *Vitis vinifera*. Die größten Puppen entwickelten sich nach Ernährung der Raupen der 1. Generation mit Blüten und Früchten von *Cerasus avium*, *Olea europaea* und *V. vinifera*, auf denen auch die stärkste Vermehrung auftrat, während die besten Entwicklungsbedingungen aller 3 Generationen auf *V. vinifera* beobachtet wurden.

D. Pospíšilová (Bratislava)

ZAPRYANOV, A., STOEVA, R.: **Parasitische Insektenfauna bei *Lobesia botrana* SCHIFF. (Lepidoptera, Tortricidae) im Südwesten Bulgariens und ihre Rolle bei der Verminderung der Befallsdichte** · Parasitic entomofauna on *Lobesia botrana* SCHIFF. (Lepidoptera, Tortricidae) in south-western Bulgaria and its role in reducing the density of the pest (bulg. m. russ., engl. Zus.)

Gradinar. Lozar. Nauka (Sofia) **19** (3), 74—80 (1982)

Kompleks. Opitna Sta., Sandanski, Bulgarien

In einem Zeitraum von 9 Jahren wurden an *Lobesia botrana* SCHIFF. 25 Parasitenarten identifiziert: 20 aus der Familie Ichneumonidae, 2 aus der Familie Chalcididae und je 1 aus den Familien Braconidae, Pteromalidae und Tachinidae. Im Jahresdurchschnitt treten die Ichneumonidae zu 68,0 %, die Chalcididae zu 28,3 %, die Tachinidae zu 3,7 % auf. Die Ichneumonidae werden in 2 ökologische Gruppen eingegliedert, von denen eine an den Raupen, die andere an den Puppen parasitiert. Das Verhältnis dieser 2 Gruppen ist von Jahr zu Jahr unterschiedlich. Verhältnismäßig stabil ist der zahlenmäßige Anteil der parasitären Arten. Am stärksten vertreten sind *Campoplex difformis* GMEL. (36,5 %), *Itopectis maculator* F. (16,9 %), *Pimpla spuria* GRAV. (14,3 %), *I. alternans* GRAV. (13,7 %), *I. tunetana* SCHM. (6,0 %). Am stärksten parasitiert wird die 1. Generation (36,9—78,8 %), gefolgt von der Wintergeneration (5,5—52,6 %); am wenigsten werden die Raupen und Puppen der 2. Generation angegriffen.

D. Pospíšilová (Bratislava)

## J. TECHNIK

AMIRANTE, P., MUGNOZZA, G. S.: **Reinigungsanlagen für Abwässer aus Kellereibetrieben** · Cleaning implements for sewage from wineries

Vignevisini (Bologna) **9** (5), 27—40 (1982)

Ist. Meccan. Agrar., Univ. Bari, Italien

Die Abwässer aus Kellereibetrieben weisen in der Regel eine geringere Verschmutzung als die anderer Industrien auf. Die Schwierigkeit der Behandlung liegt besonders in der nicht konstant anfallenden Menge und in der unterschiedlichen Verschmutzung der Abwässer. Moderne, bereits in Funktion befindliche Anlagen (die von Verff. ausführlich beschrieben werden), arbeiten in 3 Phasen: mechanische Vorreinigung, chemisch-physikalische, biologische Reinigung. Die gereinigten Abwässer entsprechen den geltenden gesetzlichen Vorschriften. Auf die Bedeutung der nicht immer den Notwendigkeiten entsprechenden Wartung und Überwachung wird hingewiesen.

*B. Weger (Bozen)*

BACH, H. P.: **Der Einfluß verschiedener Verschlüsse auf den Wein während der Lagerung in Abhängigkeit vom Füllverfahren und der Lagermethode. 1. Mitt.: Der Einfluß auf die Analytik** · The influence of different stoppers on wine during the storage as a function of the filling process and the storing conditions. 1. Note: Influence on the analytic data (m. engl. Zus.)

Wein-Wiss. **37**, 400—429 (1982)

LLVA f. Wein- Gartenbau Landwirtsch., Trier

A series of experiments with a 1975 Trier Deutscherberg Riesling Spätlese was done to find the best conditions for stoppers of wine bottles under different filling and storing conditions. The wine was filled at cold and warm temperature, the bottles were stored in a lying or standing position in cold and warm temperature, the different stoppers used were natural cork, polyethylene cork and a roll-on closure. The results of the experiments were judged up to 6 years by content of free SO<sub>2</sub>, by total SO<sub>2</sub>, by free ethanale, by the colour of the wines and the content of hydroxymethylfurfurale and show different figures depending on the experimental conditions. *H. Eschnauer (Ingelheim)*

BRENDEL, G.: **Die biologische Wirksamkeit verschiedener Feinsprühtechniken im weinbaulichen Pflanzenschutz** · The biological efficiency of different low volume spraying techniques in the viticultural plant protection (m. engl. Zus.)

Wein-Wiss. **37**, 383—390 (1982)

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

Fungicides and insecticides were applied in a vineyard (cv. Kerner) of the Rheingau throughout the 1981 season in quantities of 1000 l · ha<sup>-1</sup> through hollow-cone nozzles or of 100 l · ha<sup>-1</sup> through Teejet nozzles, using airblast sprayers equipped with either an axial or a tangential fan. Overall, the results indicate that better control was obtained with the tangential-fan sprayer, especially for *Botrytis*, and that sprays applied at the lower rate and with only 75 % of the recommended content of active materials were as effective as high-volume, high-concentration sprays. Individual differences between treatments cannot readily be judged in the absence of indications of statistical significance. *P. May (Adelaide and Dijon)*

DETTORI, S., MADAU, G.: **Quality of grapes of some Sardinia vintages harvested by machine** · Die Qualität der Trauben nach mechanischer Lese in Sardinien (ital. m. engl. Zus.)

Vignevisini (Bologna) **9** (7—8), 39—44 (1982)

Ist. Colt. Arbor., Univ. Sassari, Italien

This is a report on experiments carried out on the mechanical harvest (Femenia FB 210 harvester) of 3 Sardinian cvs. grown on trellis. Losses in production due to mechanical harvesting were low. During the second year, wine pressing and elimination of berry pedicels was performed in the field, and the product moved to the winery in tanks. Vinification (with 2 red and 1 white cv.) showed no

differences between red wines from mechanically harvested and hand-picked grapes, whereas white wine from mechanically harvested grapes lacked the typical bitter flavour.

*P. Spiegel-Roy* (Bet Dagan)

**FERRARINI, R.: New techniques for after-drying of table grapes · Neue Technik zur Nachtrocknung von Trauben (ital.)**

Vignevini (Bologna) **9** (4), 37—40 (1982)

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

Some kinds of wines, especially liqueurs, are made from grapes which remain on the vines till they are overripe. One of the most important parameters of overripeness is the high sugar concentration. Grapes at this stage are susceptible to rots, especially *Botrytis cinerea*. Sometimes the health of the grapes, left on the vines, deteriorates severely, so that they have to be harvested before the final stage of overripeness, or cannot be used at all. A new technology was lately developed which enables the control of the overripening process. A pilot plant has been built in which the storage temperature of the grapes is maintained at 30 °C, with a RH of 60. The overripeness of the grapes is accomplished after 10 d with a weight loss of 35—40 % (in comparison with 80 d in the vineyard and a weight loss of 23—28 %). A sugar content of 35—55 % is obtained because of its greater concentration in the sap, and a significantly smaller degradation of sugars by *Botrytis* than in the vineyard. A comparison of the process of overripeness in the controlled unit and in the vineyard showed the same changes in the composition of the berry in a shorter period, and no substantial differences were found in the quality of the liqueurs. The proposed technology allows an economic, industrial method of standardization of the product.

*S. Guelfat-Reich* (Bet Dagan)

**KEIM, F.-D.: Feinsprühverfahren — wirtschaftlich und umweltschonend · Fine-spraying technique — economical and ecologically beneficial**

Weinwirtschaft (Neustadt/Weinstr.) **119**, 36—38 (1983)

Die weinbaulichen und gerätetechnischen Voraussetzungen, die für eine wirtschaftliche und gleichzeitig umweltschonende Schädlingsbekämpfung zu erfüllen sind, werden dargelegt. Anders als mit herkömmlichen Universalsprühgeräten können die unterschiedlichen Anforderungen mit einem in Geisenheim entwickelten und erprobten Sprühgerät mit Tangentialgebläsen weitgehend erfüllt werden. Die Aufwandmengen um 100 l/ha entsprechen dem Feinsprühverfahren, das bei feintropfigerer Applikation (100 bis 200 µm MVD) bessere Belagsbildung und biologische Wirksamkeit gewährleistet. Mit Rotationsdüsen kann über die Erzeugung noch engerer Tropfenspektren dieser Effekt weiter verbessert werden bei gleichzeitiger Verminderung der Verluste. Höchste Applikationsqualität erfordert zusätzlich eine Standardisierung der Rebanlagen und eine Anpassung der Formulierung der Pflanzenschutzmittel.

*W. Rühling* (Geisenheim)

**LAWALL, M.: Mechanisierung der Traubenernte. Untersuchung über die Eignung von Rebsorten und Erziehungssystemen für mechanische Ernteverfahren · Mechanisation of the grape harvest. Investigations on the suitability of cultivars and systems of vine training for mechanical harvesting**

KTBL-Schrift 269 (Darmstadt-Kranichstein), 186 S. (1982)

This lengthy, well-presented report deals with mechanical harvesting of grapes under German conditions. Laboratory tests with the major German grape cultivars indicate that berry detachment during horizontal-shake harvesting is mainly due to the pendular, swinging motion imparted on the bunches, and not to direct impact. The necessary energy varies with cv. and is obtained from oscillations with amplitudes of 25—100 mm and frequencies of 360—540/min. Vineyard experiments tested the effects of varying trellis conditions, the type and amount of fruit loss, the physical condition of the harvested grapes and the quality and composition of the resultant wine. Final sections deal with damage to vines, vineyard soils and trellis, and with cost comparisons between hand and machine harvesting. The importance of proper adjustment of the machine for the quality of the harvest operation is stressed. It is concluded that this technique of harvesting, when properly applied in appropriately prepared vineyards, may compare favorably with hand harvesting in respect of grape losses and wine quality, but that careful cost comparisons need to be made.

*P. May* (Adelaide and Dijon)

**SALGAROLLO, V.: Implements and application techniques for fungicidal treatments in vineyards · Geräte und Applikationstechniken für Fungizidbehandlungen in Weinbergen (ital.)**

Vignevini (Bologna) **9** (4), 31—36 (1982)

Different systems and implements for plant protection are shortly described mentioning their advantages and disadvantages. The diverse possibilities of using them effectively are discussed with special regard to the topographical conditions and the different training systems. The vine protection measures against *Botrytis cinerea*, *Plasmopara viticola* and *Uncinula necator* are emphasized.  
B. H. E. Hill (Lauffen)

SALGUES, M., DUMONT, C., MARIS, F.: **Étude de quelques conditions influençant la filtration des vins sur membrane** · Study of certain conditions influencing membrane filtration of wines (m. engl., dt., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) **16**, 257—269 (1982)

Ecole Natl. Sup. Agron., Montpellier, Frankreich

Authors propose 2 methods to improve the economics of using membranes for the filtration of wines. One approach consists of improving the filterability of wines by preliminary treatments with Kieselguhr or with fining agents such as gelatin, casein, bentonite or isinglass. Another approach involves regeneration of clogged membranes by soaking in detergent solutions.

C. Buteau (Guelph)

## K. BETRIEBSWIRTSCHAFT

SCHWARZENBACH, J.: **Le coût de production d'un hectare de vigne** · Die Produktionskosten für einen Hektar Reben · The production cost of one hectare of grapevines

Bull. OIV **55**, 882—895 (1982)

Verf. berichtet über die Entwicklung der Arbeiten des OIV zur Erstellung einer vereinheitlichten internationalen Methode für die Produktionskostenermittlung von Trauben und Wein. In den 50er Jahren begann man mit regionalen Untersuchungen über Kalkulationsmethoden, Erarbeitung von Definitionen und Mittelwerten, mit dem Ziel, ein Schema der Kostenaufstellung zu bilden. Im Bericht der Arbeitsgruppe auf der OIV-Tagung 1982 in Lausanne geht es zunächst um das Schema für die Betriebsfassung. Bei den Produktionskosten/ha wird auf die Kostengruppe, Kostenelemente, Bezugsgrößen, Betriebsbeschreibungen, Mittelwerte der Betriebsgruppen und auf unterschiedliche Gesichtspunkte zwischen Wirtschaftlichkeit, Verwaltung und Betriebsführung eingegangen. Es wird die Organisation der Produktionskostenberechnungen in den Ländern beschrieben. Am Schluß des Berichtes ist in einem Schema der Weg zur Produktionskostenerrechnung dargestellt.  
F. Schnekenburger (Freiburg)

STUMM, G.: **Kann die Tropfbewässerung die Rentabilität des Steillagenweinbaus nachhaltig verbessern?** · Can drip irrigation persistently improve the profitability of vineyards on steep slopes?

Dt. Weinbau **37**, 1458—1462 (1982)

LLVA f. Wein- Gartenbau Landwirtsch., Bad Neuenahr-Ahrweiler

Verf. diskutiert die Tropfbewässerung in ihren betriebswirtschaftlichen Auswirkungen auf den Steillagenweinbau. — Die kalkulierten Herstellungskosten einer Tropfberegnungsanlage liegen zwischen 13 700 und 25 550 DM/ha, die tatsächlichen Herstellungskosten bei 22 400—31 300 DM/ha. Ohne Wasseranteil erreichen die jährlichen Kosten in praxisüblichen Anlagen Werte zwischen 2110 und 3974 DM/ha; daran sind Fixkosten mit 1610—2474 DM/ha beteiligt. — Erlösverbesserungen mittels Tropfbewässerung können durch Mengen- und Qualitätssteigerungen sowie durch die Ertragssicherung erzielt werden. Objektive, über einen längeren Zeitraum gesicherte Daten zur Qualitäts- und Mengensteigerung stehen z. Z. noch nicht zur Verfügung. Hochrechnungen auf der Basis tropfbewässerter Anlagen lassen den Schluß zu, daß sich mit der Tropfbewässerung nur bei ausgesprochenen Trockenstandorten — dabei handelt es sich vorwiegend um Steillagen — nennenswerte monetäre Mehrerträge erzielen lassen. Auf „Nichttrockenstandorten“ führt eine Zusatzwassergabe vorrangig zu Ertragssteigerungen. — Die Bewässerungsbedürftigkeit kann überschlägig anhand der monatlichen Niederschlagsverteilung, aber auch aus der Wasserspeicherkapazität der Böden abgeleitet werden. Um einseitige Ertragssteigerungen auszuschließen, wird ein zeitlich begrenzter Einsatz der Tropfbewässerung gefordert; als letztmöglicher Termin wird der Monat August angesehen. [Neuere Befunde zeigen, daß hierzu weitere Untersuchungen erforderlich sind. — Ref.]

W. Hofäcker (Domäne Niederhausen)



## L. ÖNOLOGIE

AMATI, A., CARNACINI, A., MONTI, R., RIPONI, C., ZIRONI, R.: **Vinification by maceration of marc at controlled temperature: Influence of time and temperature in a pilot unit** · Weinbereitung durch Mazeration bei kontrollierter Temperatur: Einfluß von Zeit und Temperatur in einer Versuchsanlage (ital. m. franz. Zus.)

Vignevisi (Bologna) 2 (10), 29—35 (1982)

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

Effects of temperature and time on juice composition (total polyphenols, catechin, leucoanthocyanins, anthocyanins, polyphenoloxidase, aroma by GC) of Albana, Trebbiano, and Fortana grapes of the 1978 season processed in a pilot unit under carbon dioxide are reported. Maceration (juice-skin contact) at 5 °C for 12—20 h causes inactivation of oxidasic enzymes, lower losses of aroma compounds, and a low rate of extraction of polyphenolic substances. *A. D. Webb (Davis)*

AMATI, A., FERRARINI, R., RIPONI, C.: **Grape over-ripening test in conditioned room. Note 2: Enological aspects of making wine from grapes of the cvs. Albana and Sangiovese under controlled conditions** · Test mit überreifen Trauben und klimatisierten Bedingungen. 2. Mitt. Önologische Gesichtspunkte der Weinherstellung aus Trauben von Albana und Sangiovese unter kontrollierten Bedingungen (ital.)

Ind. Bevande (Torino) 11, 334—340 (1982)

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

Fermentation tests with 2 different types of over-ripened grapes, which were completely and not completely maturized before fermentation, show different chemical analysis, especially with regard to some organic acids and alcohols. The fermentation conditions vary in the range of temperature, the carbonic acid and SO<sub>2</sub> contents. The best fermentation conditions for those grapes are recommended. *H. Eschnauer (Ingelheim)*

ASMAEV, M. P., SHAKHVOROSTOV, N. N.: **Formulated representation of estimations of wine parameters** · Mathematische Darstellung der Bewertung von Weinparametern (russ.)

Izv. Vyssh. Uchebn. Zaved., Pishch. Tekhnol. (Krasnodar) 6, 124—126 (1982)

Politekhn. Inst., Krasnodar, UdSSR

For the formulated representation of estimated wine parameters, a series of mathematical models were proposed. These models were suggested in view of data of different groups of experts and technologists in wine processing. *S. A. Abou-Donia (Alexandria)*

ÁSVÁNY, A.: **Bemerkungen zum Verhältnis Glucose : Fructose in Wein** · Notes on the ratio glucose : fructose in wine (ungar.)

Borgazdaság (Budapest) 30, 52—54 (1982)

Orsz. Borminösítő Int., Budapest, Ungarn

Natursüße Weine enthalten theoretisch mehr Fructose als Glucose. Das Glucose : Fructose-Verhältnis (G : F) wird jedoch durch die Aktivität der osmotoleranten fructophilen Hefen *Torulopsis stellanata* und *Saccharomyces bailii* in gärenden zuckerreichen Mosten aus *Botrytis*-befallenen Trauben ungünstig beeinflusst, indem ein Teil der Fructose bevorzugt abgebaut wird. Diese Tatsache sollte bei der Beurteilung des G : F-Verhältnisses in Betracht gezogen werden. *E. Minárik (Bratislava)*

AVAKYANTS, S. P., STRUKOVA, V. E.: **Influence of oxygen on carbonyl-amino reaction in wine** · Einfluß des Sauerstoffs auf die Carbonyl-Amin-Reaktion in Wein (russ.)

Isz. Vyssh. Uchebn. Zaved., Pishch. Tekhnol. (Krasnodar) 6, 126—128 (1982)

The influence of O<sub>2</sub> on carbonylamine reaction was studied. The model solution was: alcohol 20 vol. % in water, 550 mg amino acids/l with and without addition of 5 % O<sub>2</sub>, the mixture prepared in distilled water in duplicates. In one replicate, the O<sub>2</sub> was substituted by N, while in the other replicate atmospheric O<sub>2</sub> was introduced at the rate of 10 mg/l. The pH was adjusted at 3.1. In both duplicate

treatments, tannine 500 mg/l, furfural 50 mg/l, acetaldehyde 10 mg/l, yeast 3 g/l, and tartaric, ascorbic, and pyruvic acids 2 g/l, were added. The treatments were heated at 70 °C for 28 d, then analyzed every 7 d. In all cases, observable amounts of aldehydes were accumulated in the presence of oxygen. *S. A. Abou-Donia (Alexandria)*

**BACH, H. P., HESS, K.-H.: Einfluß des Trubgehaltes auf die Qualität des Weines. Ein Beitrag zur Frage der Mostbehandlung** · The influence of lees content on the wine quality. A contribution to questions of must treatment

Dt. Weinbau 37, 1265—1269 (1982)

LLVA f. Wein-, Gartenbau Landwirtsch., Trier

In the experiment described, must prepared from white grapes was mixed with increasing portions of own partially flash-pasteurized lees. Changes in analytical composition and sensorial quality were tested after fermentation in the resulting wines. Examinations showed that there was no significant correlation between lees content and fermentation. SO<sub>2</sub> demand and total acid contents were lower in case of fermentation with selected yeasts. Ethanol, ethanal, tannin and bentonite demand decreased with higher lees content. Sensorial valuation of wines prepared from flash-pasteurized musts was poor, whereas higher lees contents did not effect sensorial quality of wines.

*W. Flak (Wien)*

**BERTUCCIOLI, M.: Capillary column gaschromatographic analysis of the volatile components of grape and of wine applying the "headspace" procedure** · Kapillargaschromatographische Analyse der flüchtigen Komponenten bei Trauben und Wein unter Verwendung der Headspace-Technik (ital., engl.)

Vini d'Italia 24 (137), 62—68 (1982)

Ist. Ind. Agrar., Univ. Perugia, Italien

In a very general way, the valving system for transferring volatiles from an absorbent trap via a closed system to a capillary GC column is discussed. The valving design is diagrammed, but no details about the times for various steps, flow rates, temperatures, etc. are provided. No details regarding the GC capillary columns are given, other than reference to 100 m columns. GC traces for wines and musts are shown, which suggest that glass capillary columns of about 0.25 mm diameter are used, in which case the success of their transfer technique is enviable. *A. C. Noble (Davis)*

**BRUNNER, H. R., TANNER, H.: Polarographische Diacetylbestimmung in Fruchtsäften und Weinen** · Polarographic determination of diacetyl in juices and wines

Schweiz. Z. Obst- Weinbau 118, 755—760 (1982)

Eidgenöss. FA f. Obst- Wein- Gartenbau, Wädenswil, Schweiz

A simple polarographic method is described for the determination of diacetyl and acetoin in wines and juices, as a criterion of quality. The use of tetramethylammonium hydroxide solution as electrolyte eliminates an unfavourable influence of sulfurous acid. Diacetyl contents of 20 juices ranged between 0.05 and 0.1 mg/l. These juices were made from faultless raw material. Higher amounts of diacetyl can be due to microbial activities. Comparative investigations, which were performed by a photometric method, showed that both methods gave comparable results. *W. Flak (Wien)*

**DAGNA, L., BENIGNI, V., FENOCCHIO, M.: Changes in the glucose/fructose ratio during the production of Asti Spumante** · Veränderungen im Glucose/Fructose-Verhältnis bei der Herstellung von Asti Spumante (ital. m. engl., franz. Zus.)

Riv. Vitecolt. Enol. (Conegliano) 35, 456—464 (1982)

6 samples of Asti Spumante were analyzed for alcohol, reducing sugar, glucose, fructose, and optical rotation at 4 stages in the "sparkle" producing phase. Alcohol compressivo (actual alcohol + alcohol equivalent of fermentable sugar) and glucose/fructose ratios were calculated. Glycerol, 2,3-butanediol, proline, total N, 1-propanol, 2-methylbutanol and 3-methylbutanol were analyzed on the finished wines. The data should be of value in authenticating Asti Spumante. *A. D. Webb (Davis)*

DUNBAR, J.: **Oxygen isotope studies on some New Zealand grape juices** · Untersuchungen von Sauerstoffisotopen in neuseeländischen Traubensäften (m. dt. Zus.)

Z. Lebensm.-Untersuch. u. -Forsch. **175**, 253—257 (1982)

Chem. Dept., Univ. Waikato, Hamilton, Neu Seeland

Juice water of a number of New Zealand grapes were analysed for their  $^{18}\text{O}/^{16}\text{O}$  ratios in search of a method to detect the deliberate and fraudulent addition of tap water to wine. The physical parameters affecting the enrichment of  $^{18}\text{O}$  in the water of grapes were therefore studied. From these results it is concluded that only in the case where rain had fallen shortly before harvest a marked change in the  $^{18}\text{O}/^{16}\text{O}$  ratio was found due to a dilution of the juice water. If it is therefore suspected that tap water has been intentionally added to juice because of a particularly low  $^{18}\text{O}/^{16}\text{O}$  ratio of the juice water, meteorological data should be obtained to help to decide if this was in fact the case. According to this preliminary study Authors state that it should be possible to ultimately develop a method for the detection of added water in wine. *P. de Wet (Stellenbosch)*

ESCHNAUER, H.: **Eléments ultra-traces dans le vin** · Ultra-trace elements in wine

Bull. OIV **55**, 592—597 (1982)

In addition to approximately 1000 organic substances, wine contains about 50 inorganic compounds. To this latter group belong the mineral elements comprising 4 cations (K, Mg, Ca, Na) and 4 anions (C, P, S, Cl) in concentrations ranging from 10 to 1000 mg/l; trace elements in concentrations from 0.001 to 10 mg/l and ultra-trace elements in concentrations of 0.001 mg/l. Approximately 20 ultra-trace elements have been detected in wine of which the more prominent are: Sb, Be, Cd, Cs, Au, Hf, Hg, Se, Ta, Tl, and W. Techniques used for the detection of ultra-trace elements include: neutron activation, atomic absorption, emission spectroscopy and differential anion voltametry. Some of these ultra-trace elements (Sb, Cd, Hg, Tl) are toxic, indicating that contamination must be avoided. *C. Buteau (Guelph)*

ESCHNAUER, H.: **Trace elements in must and wine: Primary and secondary contents** ·

Spurenelemente in Most und Wein: Primäre und sekundäre Gehalte

Amer. J. Enol. Viticult. **33**, 226—230 (1982)

Atomic absorption spectrometry, differential pulse anodic stripping voltammetry and the neutron activation analysis were used to determine trace element concentrations in mostly German wines of various vineyards, grapes and vintages. — The results of the study show a steady decrease in the concentrations of the toxic metals Pb, Cd, As, and Hg since 1960, mainly caused by an improved wine-making technology. The concentrations of Cr and Ni, however, have gone up in recent years due to the increased use of stainless chromium-nickel-steel in machinery, equipment, and tanks for fermentation and storage. *W. Postel (Weihenstephan)*

FERENCZI, S., ERCZHEGYI, L.: **Neue Versuche mit Bentonit** · New experiments using bentonite (ungar.)

Borgazdaság (Budapest) **30**, 56—58 (1982)

Verff. untersuchten und verglichen die Eignung des ungarischen Bentonit-Präparats Neoder IBS-C<sub>1,5</sub> mit Na-Calit (Erbslöh) nach der von der OIV empfohlenen Methodik. Vom technologischen Standpunkt der Eiweiß-Stabilität und dem Klären des Weines konnten auch hinsichtlich der chemischen Zusammensetzung der Weine nach der Behandlung positive Ergebnisse erzielt werden. Einige Testergebnisse, z. B. Eiweißbindung, Wasserverlust, Säureverminderung usw., ergaben jedoch von den Vorschriften etwas abweichende Werte. *E. Minárik (Bratislava)*

FORTSOV, K., PYUESH, ZH.-L.: **Die Phenolsäuren in Rotweinen** · Phenolic acids in red wines (bulg.)

Lozar. Vinar. (Sofia) **31** (2), 23—27 (1983)

Inst. Vinar. Prom., Sofia, Bulgarien

Bei Analysen mittels Hochdruckflüssigkeitschromatographie wurden in Rotweinen, die mit Maischeerwärmung hergestellt worden waren, Vanillin-, Syringa-, Protocatechin- und p-Hydroxybenzoesäure in größeren Mengen gefunden als in konventionell bereiteten Weinen. Verff. vermuten, daß dies auf den Abbau der acylierten Anthocyanogene bei der Maischeerwärmung zurückzuführen ist. — Es zeigte sich, daß der Gehalt eines Weines an Phenolsäuren nicht nur von der Rebsorte, sondern auch vom Vinifikationsverfahren abhängig ist. *N. Goranov (Sofia)*

**GUITTARD, A., MAS, J., ROQUES, J., BRUGIRARD, A.: Techniques de stabilisations tartriques appliquées aux vins du Roussillon · Techniques of tartrate stabilization applied on wines of Roussillon**

Rev. Franc. Oenol. (Paris) **22** (87), 29—34 (1982)

Authors compare the tartrate stabilization of wine by exposure to low temperatures with the contact process by adding crystalline potassium bitartrate. They show that the contact process needs considerably less energy and time than the conventional cold treatment, and that it offers satisfactory reliability. The wine to be treated should be clarified and filtered. It is also recommended to work in N<sub>2</sub> or CO<sub>2</sub> atmosphere in order to avoid O<sub>2</sub> absorption of the wine during stirring. After washing with SO<sub>2</sub> solution (2 %) and grinding, the potassium bitartrate crystals can be used again. The contact process proved to be a simple and effective method to avoid potassium bitartrate precipitation in wine, even for small wineries.

*W. Postel* (Weihenstephan)

**HAUPT, W.: Anwendung von Enzymen in der Kellerwirtschaft · The application of enzymes in wineries**

Dt. Weinbau **37**, 1026—1029 (1982)

LLVA f. Wein-, Gartenbau, Oppenheim

Pectolytic enzymes are used in Germany for more than 30 years. This experience permits to say that treatment of mash with pectolytic enzymes increases filterability and pressure-capacity, whereas addition of enzymes to must hastens its clarification. The knowledge of conditions like temperature or duration of treatment may be important to practical work with enzymes. The purity degree of enzyme preparations is definable by further enzyme activities.

*W. Flak* (Wien)

**JEURING, H. J., BRANDS, A.: High performance liquid chromatography of 5-nitrofurylacrylic acid in red and white wine · Hochleistungsflüssigkeitschromatographie zur Bestimmung von 5-Nitrofurylacrylsäure in Rotwein und Weißwein (m. dt., franz. Zus.)**

Dt. Lebensm.-Rundsch. (Stuttgart) **78**, 350—351 (1982)

Food Insp. Serv., Amsterdam, Niederlande

In some East European countries 5-nitrofurylacrylic acid (5-NFA) is sometimes used as wine preservative, but due to its alleged harmfulness to human health it is not allowed in the European Community. Although several methods of determination are known, they are often tedious and time-consuming. A simple and fast method is therefore described to determine 5-NFA in white and red wines by means of reversed-phase high performance liquid chromatography. No sample preparation is needed and no interference is experienced from sorbic acid and benzoic acid although both can be determined likewise by changing the mobile phase. Since 5-NFA was found to be instable in wine, none was detected in the studied red wine after storage at room temperature and daylight for a few months. This instability was probably the cause why Authors could not detect any 5-NFA in wine samples obtained from local supermarkets. In general, they state that the described method is suitable for screening wines in the presence of 5-NFA. The detection limit is about 1 mg/l.

*P. de Wet* (Stellenbosch)

**KALLAY, M., BARDI, G., NEDELKOVITS, J.: Spektrophotometrische Bestimmung der CN-Ionen-Konzentration in Weinen und önologischen Produkten · Spectrophotometric determination of CN-ion concentration in wines and enological products (ungar.)**

Borgazdaság (Budapest) **31**, 31—33 (1983)

Verf. beschreiben eine in der Weinanalytik bisher nicht verwendete spektrophotometrische Methode der CN-Bestimmung, die durch ihre Einfachheit und moderne Auffassung auch in Betriebslabors routinemäßig und zuverlässig angewendet werden kann. Das Prinzip der Bestimmung besteht in der Messung der Absorbanz der farbigen Verbindung bei 550 nm, die durch die Reaktion von Phenolphthalein mit HCN-Ionen in Anwesenheit von Cu<sup>2+</sup>-Ionen entsteht. Die Farbreaktion wird durch andere flüchtige Substanzen des Weines nicht gestört. Die ausführlich beschriebene Bestimmungsmethode kann auch bei anderen Produkten, wie Weinbrand, angewendet werden.

*E. Minárik* (Bratislava)

**MARGHERI, G., GIANOTTI, L., MATTAREI, C., PELLEGRINI, R.: Evolution of free amino acids during the production of sparkling wines · Entwicklung von freien Aminosäuren bei der Herstellung von Schaumweinen (ital. m. franz. Zus.)**

Vignevis (Bologna) **9** (11), 19—30 (1982)

Lab. Anal. Ric., Ist. Agrar. Prov., S. Michele all'Adige, Trento, Italien

Concentrations of free amino acids by automatic ion-exchange column analyzer of base wine, bulk process spumante, and bottle-fermented spumante are reported for 9 wines. Bulk process wines were inoculated with  $1.2$  or  $2.4 \cdot 10^6$  cells/ml. Bottle-fermented spumantes were analyzed after 18, 35, and 66 months of yeast-wine contact. Only small amounts of free amino acids are assimilated by yeast during the second fermentation (667 mg/l total free amino acids in base wine to 562 mg/l for bulk process and 667 to 638 for bottle fermented). 5 years' yeast-wine contact left unchanged the total free amino acid concentration at 667 mg/l wine. *A. D. Webb (Davis)*

MARIGNETTI, N.: **Ion exchange in the oenological industry** · Ionenaustauscher in der Weinindustrie (ital. m. engl. Zus.)

Vignevis (Bologna) **9** (7—8), 33—38 (1982)

The technology of ion exchange in the oenological industry is discussed. A number of advantages are found as rectification of concentrated must as well as clarification, stabilization and flavor improvement of wine. — The chemical composition, the physical behaviour and the possible contamination of the synthetic ion exchangers are explained, especially with regard to the wine industry. Best methods of application for the practice are recommended. *H. Eschnauer (Ingelheim)*

MEIDINGER, F.: **Rektifiziertes Traubenmostkonzentrat. Gewinnung, Einsatz, bisherige Erfahrungen** · Rectified grape juice concentrate. Preparation, use, experiences to date. Rebe u. Wein **35**, 417—420 (1982)

Grape juice is rectified through ion exchange or electrodialysis, processes which remove acids, polyphenols, minerals and nitrogenous components. Both methods are described and explained in detail using flow diagrams. This deionised juice is then concentrated by a centritherm. Rectified grape juice concentrate is essentially grape sugar, which can be used instead of beet or cane sugar. Political implications of such a move are discussed. The German wine law of 1982 prevents the use of this type of concentrate. *R. Eschenbruch (Te Kauwhata)*

NACHKOV, D., KUYUMDZHIAN, E., KHADZHISKI, D.: **Diacetyl- und Acetoinhalte in Weinen und Spirituosen** · Diacetyl and acetoin contents in wines and alcoholic liquors (bulg.)

Lozar. Vinar. (Sofia) **31** (6), 35—38 (1982)

Inst. Vinar. Prom., Sofia, Bulgarien

Analysen ergaben in Rotweinen einen 4—5 × höheren Acetylgehalt als in Weißweinen. In natürlichen Schaumweinen und Dessertweinen nahm der Gehalt eine Zwischenstellung ein. Traubenbranntweine enthielten mehr Diacetyl als Obstbranntweine. Während der Alterung von Weinen und Branntweinen nahmen der Diacetyl- und Acetoinhalt ab. *N. Goranov (Sofia)*

OBERMAYER, F.: **Geschichte der Verwendung von weinwirtschaftlichen Nebenprodukten in Ungarn** · History of using by-products from wineries in Hungary (ungar.)

Borgazdaság (Budapest) **30**, 112—116 (1982)

Szölész. Borászati Kut. Int., Budapest, Ungarn

Ein historischer Überblick über die Ausnutzung weinwirtschaftlicher Nebenprodukte mit Literaturangaben von vorwiegend ungarischem Schrifttum seit 1894 wird ausführlich und chronologisch dargelegt. Aus den Ausführungen geht hervor, daß seit 1930 die sehr bedeutsame Weinsäureproduktion durch die ökonomisch vorteilhaftere Citronensäureproduktion überflügelt wurde. Dies hat sich limitierend auch auf die Verarbeitung der Weinnebenprodukte ausgewirkt. Trotzdem hat sich die Verarbeitung von Nebenprodukten der Weinindustrie kontinuierlich weiterentwickelt — nicht nur in Ungarn. *E. Minárik (Bratislava)*

OLAH, L.: **Neuere Möglichkeiten der Stabilisierung von Weinen gegen Metalltrübungen** · New possibilities of stabilizing wines in order to prevent metal turbidity (ungar.)

Borgazdaság (Budapest) **30**, 98—100 (1982)

Szölész. Borászati Kut. Int., Kecskemét, Ungarn

Verf. stellt eine modifizierte Methode der Blauschönung vor. Fe ist neben anderen Schwermetallen in Ionenform oder komplex gebunden im Wein enthalten. Die zur Herabsetzung des Fe-Gehaltes auf  $<2 \text{ mg/l}$  erforderliche Menge Ferrocyanid (F) wird labormäßig bestimmt und in Überdosis appliziert. Der Schönungsvorgang läuft in 3 Phasen ab: 1. Alle anderen Schwermetalle außer Fe werden ausgefällt. 2. Das in Ionenform vorhandene Fe fällt aus. 3. Das komplex gebundene Fe wird frei und fällt mit F als Berliner Blau aus. Das überschüssige F wird durch Zinksulfat quantitativ gefällt und ausgefiltert. — Diese Methode wird z. Zt. in Ungarn (nach ministerieller Genehmigung) angewendet.  
*E. Minárik (Bratislava)*

PARFENTSEVA, T. L., TUR'YAN, YA. I., OVCHINNIKOVA, S. A.: **Determination of potassium in wine making with the help of ion-selective electrode** · Bestimmung von Kalium bei der Weinbereitung mit Hilfe von ionenselektiven Elektroden (russ.)

Izv. Vyssh. Uchebn. Zaved., Pishch. Tekhnol. (Krasnodar) (6), 108—111 (1982)

Politekhn. Inst., Krasnodar, UdSSR

The purpose of this experiment was to find out a method for determining the K content in wines by the use of ion-selecting electrodes. The results obtained in different wine types were compared with the results of flame-photometric analyses. The resulting differences are favorable (maximally 15 %) and accurate enough for the practical use.  
*J. Blaha (Brno)*

PUISAIS, J.: **Appréciation analytique et sensorielle de la qualité des vins** · Sensory and analytic evaluation of wine quality

Bull. OIV 55, 286—321 (1982)

The term quality as applied to wine has many different meanings, dependent upon one's viewpoint, be it winemaker, salesman or consumer. In this light, chemical and microbiological analyses are inadequate as a means of determining wine quality, despite the increasingly sophisticated methodologies employed. Intrinsic to wine evaluation are the results of the sensory analysis; however, this is only true when the sensory testing is carried out under rigidly controlled conditions, as outlined in this article. Therefore, accurate evaluation of wine quality may only be achieved by a partnership of sensory and analytic methodology.  
*J. Green (Winona)*

ROMANTSEVA, L. M., SUKHANOVA, V. A., SERGEEVA, A. M.: **Demetalization of wines and cognac treated with  $\text{Na}_3\text{NTF}$  complex** · Entfernung von Metallionen durch Behandlung von Wein und Kognak mit  $\text{Na}_3\text{NTF}$ -Komplex (russ.)

Izv. Vyssh. Uchebn. Zaved., Pishch. Tekhnol. (Krasnodar) (4), 40—41 (1982)

Tekhnol. Inst., Pishch. Prom., Moskau, UdSSR

For demetalization of wines from Fe and Al cations and cognac from Fe, Cu and Al cations,  $\text{Na}_3\text{NTF}$  complex (tri-Na-salt of nitrotrimethylphosphonic acid) was added to the wines or cognacs. The addition of 4.8 mg complex/mg Fe and 5 mg complex/mg Cu was enough for minimizing the cations within 4—5 d to a very high degree.  
*S. A. Abou-Donia (Alexandria)*

TÓTH, G.: **Charakterisierung der stickstoffhaltigen Bestandteile und der Zusammensetzung der Proteine in ungarischen Mosten und Weinen** · Characterization of nitrogen-containing constituents and the protein composition in Hungarian musts and wines (ungar.)

Borgazdaság (Budapest) 30, 65—70 (1982)

Durch Polyacrylamid-Gelelektrophorese können Mostproteine (MP) so gut wie vollkommen getrennt werden. Die Zusammensetzung der MP hängt nicht ausschließlich von den Sorteneigenschaften der Rebe ab. Sie werden auch vom Jahrgang, Reifezustand der Trauben und vom Standort der Rebe geprägt. In den MP überwiegen temperatur- vor salzempfindlichen Fraktionen. Während der Gärung wird eine Differenzierung des Proteinspektrums herbeigeführt. Durch Bentonitbehandlung des Mostes kommt es mit zunehmenden Bentonitdosen zu einer steigenden Bindung der Proteinkomponente bzw. Eliminierung von Proteinfractionen. Die Struktur des Weinproteinogramms ist, verglichen mit dem des Mostes, einfacher, die Anzahl der Fraktionen geringer. Die Identifizierung der Weinsorte aufgrund des Proteinspektrums ist daher schwieriger. Praktische Aspekte der Versuchsergebnisse werden erläutert.  
*E. Minárik (Bratislava)*

UBIGLI, M., CASTINO, M., STEFANO, R. DI, SERPENTINO OPESSIO, M.: **Versuche zur Anwendung von H<sub>2</sub>S vor der Gärung zum Zwecke der Einsparung von SO<sub>2</sub>** · Experiments on the use of H<sub>2</sub>S before fermentation in order to save SO<sub>2</sub> (ital. m. engl. Zus.)

Riv. Viticolt. Enol (Conegliano) **35**, 485—510 (1982)

Ist. Sper. Enol. Asti, Italien

3 Moste aus roten und 5 Moste aus weißen Trauben wurden nach der von RUIZ HERNANDEZ beschriebenen Methode mit 28 mg CaS/l, entsprechend 20 mg H<sub>2</sub>S/l, behandelt. Die Vergleichsmoste wurden mit 100 mg SO<sub>2</sub>/l versetzt. Die in üblicher Weise ausgebauten Weine zeigten keine Unterschiede in organoleptischer Hinsicht. Der Pyruvatgehalt lag bei den mit H<sub>2</sub>S behandelten Proben niedriger als bei den mit SO<sub>2</sub> versetzten.

*E. Lück* (Frankfurt/M.)

URAY, G.: **Neuere Ergebnisse der Untersuchung von Ungarnweinen auf Gehalt an Chloriden** · Novel results of investigations on the content of chlorides in Hungarian wines (ungar.)

Borgazdaság (Budapest) **30**, 102—104 (1982)

Szölész. Borászati Kut. Int., Budapest, Ungarn

In den letzten Jahren wurden relativ hohe Gehalte an Chloriden in ungarischen Weinen festgestellt, die auch agrotechnischen und technologischen Eingriffen zugeschrieben werden. Hohe Cl<sup>-</sup>-Gehalte konnten auch in importierten Mosten (190 mg · l<sup>-1</sup>), in Rotweinen (40—60 mg · l<sup>-1</sup>) und in Mistellen (75 mg · l<sup>-1</sup>) ermittelt werden. Als Cl<sup>-</sup>-Quelle im Wein werden u. a. Mineräldünger angeführt. In Rotweinen war der Cl<sup>-</sup>-Gehalt höher als in Weißweinen. Die Herbicide Hungazin und Buvinolt (triazinhalte Präparate) können ebenfalls den Gehalt an Cl<sup>-</sup> auf Trauben und in Weinen erhöhen.

*E. Minárik* (Bratislava)

URBAN, A., ERDÖSS, T., PÁSTI, G., OHEGYI, J.: **Vergleichende Untersuchungen von Rotweinen, hergestellt mit Maischegärung und Wärmebehandlung** · Comparative investigations on red wines produced by mash fermentation and heat treatment (ungar.)

Borgazdaság (Budapest) **30**, 92—94 (1982)

Die stärkere Maischeschwefelung bei der klassischen Rotweinherstellung durch Maischegärung (200—250 mg SO<sub>2</sub>/l) erbrachte günstigere chemische und organoleptische Parameter der Rotweine als die übliche schwächere Schwefelung mit nur 50—70 mg SO<sub>2</sub>/l. Von 4 verschiedenen untersuchten pektolytischen Enzympräparaten konnte mit Pectinol VR bei wärmebehandelten Maischen (60 °C, 60 min) eine raschere Klärung der Rotweine herbeigeführt werden. Das ungarische Präparat Phylendonáz ergab zwar auch ermutigende Resultate, es wird jedoch noch weiteren Untersuchungen unterzogen werden müssen.

*E. Minárik* (Bratislava)

USSEGLIO-TOMASSET, L.: **Influence de la température de conservation sur les caractéristiques physico-chimiques et organoleptiques des vins (vins aromatiques)** · Influence of storage temperature on the physico-chemical and sensory characteristics of aromatic wines

Bull. OIV **56**, 19—34, (1983)

Ist. Sper. Enol, Asti, Italien

Various lots of Asti Spumante stored for 180, 310 and 470 d at 10 °C and at 20 °C were analyzed for changes in color (absorbance at 480 nm), in esters and in terpenes. Wines stored for 470 d were also tasted by trained technicians. Wines stored at 20 °C were definitely inferior to those stored at 10 °C from all points of view: increased browning, loss of typical "Muscat" character attributed to a marked decrease in linalol, loss of volatile esters other than ethylic esters, and other differences in volatile constituents of the wines.

*C. Buteau* (Guelph)

USSEGLIO-TOMASSET, L., BOSIA, P. D.: **Untersuchungen zum Sättigungszustand des Kaliumbitartrat in Mosten und Weinen** · Experiments on the saturation state of potassium bitartrate in musts and wines (ital. m. franz. Zus.)

Riv. Viticolt. Enol., (Conegliano) **35**, 261—296 (1982)

Ist. Sper. Enol, Asti, Italien

Die ausführlichen Berechnungen anhand der Analysendaten werden durch die Versuche bestätigt. Bei der Kühlung und dem Zusatz von Kaliumbitartrat (KBT) ist die Kristallgröße von außerordentlicher Wichtigkeit. Die KBT-Sättigungstemperatur eines Weines kann direkt bestimmt oder auch berechnet werden. Sie steht im Verhältnis zur Stabilität, sagt aber nichts über die inhibitorische Wirkung aus. Nach der Kühlung von Weinen mit verschiedener inhibitorischer Wirkung kann die Sättigungstemperatur auch um  $> 7-8^{\circ}\text{C}$  schwanken. *B. Weger* (Bozen)

VODRET, A., MADAU, G., VACCA, V.: **The polyphenols in Sardinian white wines. Note 1: the content of polyphenols of the cv. Nuragus** · Die Polyphenole in sardinischen Weißweinen. 1. Mitt.: Der Polyphenolgehalt der Rebsorte Nuragus (ital. m. franz. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 550—559 (1982)

Ist. Ind. Agrar. Univ. Sassari, Italien

Determination of the polyphenol content in white wines of the cv. Nuragus from Sardinia showed its dependence on the wine producing technique. The results of 11 wine samples produced traditionally (fermentation together with the marc of the grapes) was with 1.1—3.3 g/l, average 2 g polyphenols/l, very high and those wines are therefore very sensible to oxidation, whereas the 19 wines fermented after pressing of the grapes had lower level of polyphenols from 0.132 to 0.620 g/l, average 0.421 g/l. The best results with lowest content of polyphenols could be achieved after must separation, so far that this procedure should be recommended. *H. Eschnauer* (Ingelheim)

WACHTLER, I.: **Ein mathematisches Modell zur Beschreibung der Mostgärung** · A mathematical model for characterizing the must fermentation (ungar.)

Borgazdaság (Budapest) **30**, 71—73 (1982)

Die Mostgärung kann durch ein logistisches mathematische Modell charakterisiert werden. Die berechnete Korrelation für Zuckerverbrauch, Alkohol- und  $\text{CO}_2$ -Bildung konnte zwischen 0,89 und 0,999 festgestellt werden. Der relative Fehler liegt unterhalb 10 %. Das Modell ermöglicht es, mathematisch sonst nicht zu bestimmende wichtige Daten, z. B. die Gärgeschwindigkeit u. a., mit Computer zu errechnen, was Zeit einspart und Fehler vermeiden hilft. *E. Minárik* (Bratislava)

WUCHERPFENNIG, K., CHEN HSUEH-ERR: **Bilanz der Inhaltsstoffe. Verhalten von Mineralstoffen beim Entsaften von Früchten** · Mineral composition of fruits and juices in relation to juice production technology (dt. u. engl.)

Flüss. Obst (Bad Homburg) **50**, 8—10; 15—22 (1983)

Inst. Weinchem. Getränkeforsch., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

Analyses were carried out to determine the presence of total minerals, K, Ca, Na, phosphate and sulphate in grape flesh, peel, seeds and juice. Juice was produced from white Regina grapes and red Pascal di Cagliari grapes. The total mineral components as well as individual anions and cations occur in different concentrations in the 3 fruit parts and the juice. *P. Dürr* (Wädenswil)

## M. MIKROBIOLOGIE

ABDURAZAKOVA, S. KH., KHAKIMOVA, S. P., FOMICHEVA, T. M.: **Lipid exchange of wine yeasts** · Austausch von Lipiden in Weinhefen (russ.)

Izv. Vyssh. Uchebn. Zaved., Pishch. Tekhnol. (Krasnodar) (3), 118—120 (1982)

2 % of *Saccharomyces vini* culture was cultivated in sterilized grape juice containing 180 mg lipids/l. The lipolytic activity of the yeast strain was determined during 7 d of incubation. The lipid exchange and biomass accumulation increased with increasing temperature and incubation time. The fortification of juice with caprylic acid and/or glucose enhanced the fat exchange more than oleic acid and/or lactose, while glucose enhanced the biomass accumulation more than other additives. *S. A. Abou-Donia* (Alexandria)



AVAKYAN, B. P., VARTANYAN, L. S., TER-BALYAN, N. A.: **Amino-acid ingredients of wine lees and its changes in the process of storage** · Aminosäuregehalt von Hefetrub in Wein und seine Veränderungen während der Lagerung (russ. m. armen., engl. Zus.) *Biol. Zh. Armenii (Erevan)* **35**, 742—746 (1982)

The chemical analysis of wines in 4 Armenian factories proved that wine lees contained 17 amino acids. The quantity of these amino acids changed during storage. In most cases, the free amino acids decreased, while the bound amino acids increased with storage time. The long-lasting wine storage in warm places increased the possibilities of the deterioration of the wine and the growth of undesirable flora.  
S. A. *Abou-Donia* (Alexandria)

BENDA, I.: **Botryticide, ihre Wirkstoffe und Formulierungsmittel in der mikrobiologischen Prüfung** · Microbiological studies on botryticides with special reference to their active and auxiliary components (m. engl. Zus.) *Wein-Wiss.* **38**, 41—50 (1983)

Bayer. LA f. Wein- Obst- Gartenbau, Würzburg

*Saccharomyces cerevisiae* fermented grape juice, to which the botryticides Ronilan, Rovral and Sumisclex had been added in their commercially available composition. Additionally, the formulation components (inert ingredients) as well as the active ingredients were assessed for their influence on fermentation. It is shown that Ronilan has no detrimental effect on the yeast whereas Rovral and Sumisclex delay the onset of fermentation. This is due to the inert ingredients. The active ingredients show no influence. — Addition of Tween 80 reversed the inhibitory effects.

R. *Eschenbruch* (Te Kauwhata)

BERGER, J.-L.: **Incidences oenologiques des produits antipourriture** · Adverse effects of fungicides on winemaking

*Vignes et Vins (Paris)* (313), 30—33 (1982)

Fungicides used in vineyards to prevent losses due to rot, could have various adverse effects on yeasts during the alcoholic fermentation. Euparene and Folpel always caused a delay in the onset of fermentation. Rovral, Ronilan and Sumisclex had no inhibitory effects on yeasts. Malo-lactic bacteria have not been reported to be affected by fungicide residues. No defective tastes were detected in wines containing fungicide residues. When fungicides were used according to the specifications, the level of residues never exceeded the legal limits.  
C. L. *Duitschaeffer* (Guelph)

CIOLFI, G.: **Die Hefen während der verschiedenen Verarbeitungsphasen des Asti Spumante** · The yeasts during the various processing stages of "Asti Spumante" (ital. m. engl., franz. Zus.)

*Riv. Viticolt. Enol. (Conegliano)* **35**, 163—169 (1982)

Ist. Sper. Enol., Asti, Italien

Während der üblichen Aufbewahrung der Moste bei oder unter 0 °C wird fast ausschließlich die natürliche Hefeflora, u. z. *Saccharomyces uvarum* und *S. coreanus*, festgestellt. Diese kälteresistenten Hefen können die Vergärung bis ca. 10 Vol.-% Alkohol zu Ende führen, was wiederum eine wiederholte Behandlung (Filtration) notwendig macht. Nach Impfung und Vergärung mit Reinzuchthefen wird nicht immer der zugesetzte Stamm wiedergefunden.  
B. *Weger* (Bozen)

CIOLFI, G., STEFANO, R. DI: **Variabilities in the production of volatile components by the same yeast strain on synthetic medium** · Unterschiede bei der Erzeugung flüchtiger Komponenten durch den gleichen Hefenstamm auf synthetischem Medium (ital. m. engl. Zus.)

*Vignevisini (Bologna)* **9** (9), 39—41 (1982)

Ist. Sper. Enol., Asti, Italien

10 aliquots (quantity unspecified) of a synthetic medium (200 g sucrose/l, 400 mg ammonium nitrogen/l, pH 3) were fermented in 11 bottles at 20 °C. Each was inoculated with 10<sup>6</sup> cells/ml of a strain of *Saccharomyces cerevisiae* (S46c). 250 ml filtrate of each (with 40 g NaCl, 1-heptanol as internal standard, and made to 500 ml with water) was extracted first with pentane, and second with 40—60 dichloromethanepentane. Concentrated extracts were analyzed by capillary GC on Carbowax 20M.

Conc. of 24 compounds are reported, with coefficients of variability being 10.9—87.1 % for fatty acids, 18.8—42 % for esters, 18.2—35.7 % for fusel alcohols, and 18.8 % for 2-phenethanol.

A. D. Webb (Davis)

DITTRICH, H. H.: **Senkung des SO<sub>2</sub>-Bedarfs durch mikrobiologische Maßnahmen** · Reduction of SO<sub>2</sub> requirement by microbiological methods  
Weinwirtsch. (Neustadt/Weinstr.) **118**, 920—922 (1982)

FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

The proposal of the European Community to lower the SO<sub>2</sub> concentration limit in wines to 25 mg/l<sup>-1</sup> is discussed in relation to the total winemaking process. In particular, the involvement of the metabolism of yeast in influencing the final SO<sub>2</sub> concentration is emphasised. The advantages of using pure culture yeasts and carrying out uninterrupted fermentations are discussed together with the potential of biological acid degradation mainly by lactic acid bacteria. The allowable addition of thiamine is shown to be of advantage in reducing SO<sub>2</sub> demand. The risks involved in the use of any of the methods of reducing SO<sub>2</sub> demand are discussed.

D. J. Spedding (Auckland)

EDELENYI, M., TÖRÖK, T., KUN, A.: **Isolierung und Verwendung einer Hefeart, die nur kleine Mengen flüchtiger Säuren erzeugen** · Isolation and use of a yeast strain producing volatile acids in small amounts (ungar.)

Borgazdaság (Budapest) **30**, 95—96 (1982)

Selektierte Hefen der Gattung *Zygosaccharomyces* sind zwar als gärschwach anzusprechen, sie bilden aber bei der alkoholischen Gärung außergewöhnlich wenig flüchtige Säuren. So konnten in Laborversuchen pasteurisierte Moste mit 250—270 g Zucker/l mit der Hefe *Zygosaccharomyces bisporus* var. *mellis* binnen 14—18 d auf 60—80 g Restzucker bei nur 0,2—0,3 g flüchtiger Säure vergoren werden. Mit der echten Weinhefe Tokaj 22 (*Saccharomyces cerevisiae*) vergorene Moste wiesen hingegen bis 0,8 g flüchtige Säure auf. Auch unter Betriebsbedingungen konnten bei Verwendung eines 8—10 %igen Gäransatzes ähnliche Ergebnisse erzielt werden. Voraussetzung eines Erfolges ist allerdings strenge Kellerhygiene und Pasteurisation des Mostes vor der Gärung, um die Aktivität der spontanen Hefenflora zu unterdrücken.

E. Minárik (Bratislava)

LEMPERLE, E., KERNER, E.: **Vergleichende Prüfung von Trocken-Reinzuchthefen. 3. Mitteilung: Analytische Kennzahlen neuer getrockneter Hefestämme** · Comparative testing of dry pure-culture yeasts. Part 3: Analytical characteristics of new dried yeast strains

Weinwirtsch. (Neustadt/Weinstr.) **118**, 925—930 (1982)

Staatl. Weinbauinst., Freiburg/Br.

The fermentation properties of a number of dried pure-culture yeasts of commercial origin were studied and compared with yeast suspensions. Determinations of live cell numbers, the time course of fermentation at different temperatures and sugar contents, the formation of SO<sub>2</sub>, volatile acids, glycerine, pyruvate and acetaldehyde, foam formation in pasteurised and sterile filtered conditions, the formation of H<sub>2</sub>S and the organoleptic properties of the young wines were made. Commencement of fermentation by the dried yeasts was delayed compared to yeast suspensions probably because of the elevated SO<sub>2</sub> levels in the juices used. The separate properties of each of the tested yeasts are discussed in relation to the analytical results, so that appropriate yeasts may be selected for certain fermentation conditions.

D. J. Spedding (Auckland)

LONVAUD-FUNEL, A., JOYEUX, A.: **Application de la bioluminescence au dénombrement des microorganismes vivants dans les vins** · Use of bioluminescence for the enumeration of living microorganisms in wines (m. engl., dt., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) **16**, 241—256 (1982)

Inst. Oenol., Univ. Bordeaux II, Talence, Frankreich

The technique of bioluminescence was applied to evaluate populations of yeasts and malo-lactic bacteria in wines. This technique compared favorably with the traditional method of counting colonies and has the advantage of being much faster. Refinements are still needed to differentiate between yeasts and bacteria and also to reduce the threshold of detection.

C. L. Duitschaeffer (Guelph)

MAGYAR, I., KÁDÁR, G., KOVÁCS, L.: **Neuere Ergebnisse bei der Verwendung von Kahmhefen.** · Latest results when using film-forming yeasts (ungar.)

Borgazdaság (Budapest) **30**, 96—97 (1982)

Kertés. Egyet., Budapest, Ungarn

Im Rahmen von Versuchen zur experimentellen Sherry-Herstellung in Ungarn wurden 4 Hefenstämmen (Tokaj 8, Tokaj 19, Moldva 1 und *Saccharomyces cheresiensis*) auf ihre Kahm- und Acetaldehydbildungsfähigkeit bei verschiedenem steigendem Alkoholgehalt des Weines (14,5—17,5 Vol.-%) untersucht. Grundweine mit 17,5 Vol.-% Alkohol hemmten alle Hefenstämmen, mit Ausnahme von *S. cheresiensis*, sehr stark. Die Stabilität der Kahmdecke wird jedoch durch steigende Alkoholkonzentrationen erhöht. Auch die Acetaldehydbildung wird mit steigendem Alkoholgehalt herabgesetzt. Nur bei *S. cheresiensis* konnten zufriedenstellende Werte festgestellt werden. Bei der Sherry-Herstellung wird ein Alkoholniveau der Weine von 16—16,5 Vol.-% empfohlen. Bisherige Ergebnisse mit der kontinuierlichen Sherry-Herstellung in Stahl tanks werden kurz besprochen.

E. Minárik (Bratislava)

POULARD, A.: **Assimilation de l'acide tartrique par *Aureobasidium pullulans* (DE BARY)**

ARNAUD · Assimilation of tartaric acid by *Aureobasidium pullulans* (DE BARY) ARNAUD

Rev. Franç. Oenol. (Paris) **22** (87), 23—26 (1982)

Inst. Tech. Vin, Nantes, Frankreich

Author demonstrates that certain strains of *Aureobasidium pullulans* could degrade between 1 and 23 % of the tartaric acid present in grape juice. 1 strain was able to degrade 0.45 g tartaric acid/l. Supplementation with biotin did not influence the degradation of tartaric acid by this yeast. *A. pullulans* did not increase the volatile acidity of the wine to any appreciable extent, nor did it produce sulfurous acid. This yeast was sensitive to SO<sub>2</sub> at concentration greater than or equal to 10 g/hl.

C. L. Duitschaever (Guelph)

RADLER, F., LANG, E.: **Malatbildung bei Hefen** · Formation of malate by yeast (m. engl. Zus.)

Wein-Wiss. **37**, 391—399 (1982)

Inst. Mikrobiol. Weinforsch., Johannes Gutenberg-Univ., Mainz

Studies were undertaken in order to assess the factors influencing the formation and secretion of malate by *Saccharomyces cerevisiae* and *S. uvarum*. Malate formation occurred during the phase of active growth and was influenced by the composition of the nutrient medium. N concentration was of particular importance, with malate production being optimal at 106 mg N·l<sup>-1</sup>. The N could derive from ammonium sulphate or some amino acids. High initial medium pH stimulated malate production as did increasing glucose concentration up to 20—30 %. In the presence of elevated CO<sub>2</sub> concentrations, malate formation was promoted implicating a carboxylation reaction in its formation. Malate present after fermentation may thus have been synthesised by yeasts as well as being decomposed by them.

D. Spedding (Auckland)

SPONHOLZ, W. R., DITTRICH, H. H., BARTH, A.: **Über die Zusammensetzung essigstichiger Weine** · On the composition of vinegar-tinged wines (m. engl., franz. Zus.)

Dt. Lebensm.-Rundsch. (Stuttgart) **78**, 423—428 (1982)

Inst. Mikrobiol. Biochem., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

Wines considered faulty because of high contents of volatile acidity are critically analysed, not only for acetic acid levels but also for malate, D- and L-lactate, dihydroxyacetone and ethylacetate concentrations. It is recommended not to use "volatile acidity" as the allembreaching term for this fault. There should be a clear distinction between faults caused by acetic acid and those by its esters. When comparing levels of these components their origin is discussed. Acetic acid bacteria, lactic acid bacteria and wild yeasts can be responsible.

R. Eschenbruch (Te Kauwhata)

STEFANO, R. DI, CIOLFI, G.: **Acetaldehyde production from yeast strains of various species** · Erzeugung von Acetaldehyd aus Hefenstämmen verschiedener Species (ital. m. engl. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 474—480 (1982)  
Ist. Sper. Enol., Asti, Italien

A colorimetric method for acetaldehyde based on measurement of OD at 570 nm of the acetaldehyde nitroprusside complex gives a C. V. of 4.53 % for 10 repetitions and acceptable accuracy. Acetaldehyde produced by 27 strains of 3 species of yeast in a synthetic medium ranged from 16 to 350 mg/l. *Saccharomyces bayanus* and *S. cerevisiae* gave nearly equal amounts of aldehyde and about  $\frac{1}{6}$  as much as *S. uvarum*.  
A. D. Webb (Davis)