DOKUMENTATION
DER
WEINBAUFORSCHUNG

A. ALLGEMEINES

BOUQUET, A.: **Origine et évolution de l'encépagement français à travers les siécles** · Origin and evolution of French grapevine cultivars throughout the centuries
Progr. Agric. Vitic. (Montpellier) **99**, 110—121 (1982)
Sta. Rech. Viticult. (INRA), Pont-de-la-Maye, Frankreich

After reminding of the beginning of grape cultivation in Transcaucasia and the spreading of these first varieties all around the Mediterranean Sea as far as France, the development of the French viticulture is analyzed considering mainly which varieties were used from the Middle-Ages till now. In fact, the available information is more and more increasing towards the present time. So, many changes in the grape assortment due to the occurrence of diseases and pests by the 2nd half of the 19th century are described and their consequences on wine quality are shown. — In conclusion, 2 remarks are made: (1) Varieties of poor quality always developed when a great quantity of cheap wines was needed by trade and (2), on the other hand, only vineyards having chosen a few good varieties met with success, because their wines bore the particular stamp of these vineyards.
J. P. Doazan (Bordeaux)

B. MORPHOLOGIE

OKAMOTO, G., IMAI, SH.: **A histological study of berry setting in Muscat of Alexandria grapes** · Histologische Untersuchung des Beerenansatzes bei Trauben der Sorte Muskat von Alexandria (jap. m. engl. Zus.)
J. Japan. Soc. Hort. Sci. (Tokyo) **50**, 436—444 (1982)
Coll. Agricult., Univ. Okayama, Okayama, Japan

Shoot pinching, cluster trimming and B spray in Muscat of Alexandria do not influence the pollen tube growth, that reaches the ovules even on the 1st d after pollination. 2 or 3 d after anthesis, the endosperm nucleus undergoes division, regardless of any treatment. On the contrary, the treatments influence the progression of the free nuclei division. 2—4 d after anthesis, many ovules degenerate and abort; ovaries with 3 or 4 aborted ovules abscise, while those with no or a single aborted ovule develop into berries. In treated shoots, the rate of berry setting is increased mainly by decreasing the rate of ovule abortion. *L. Carraro* (Mailand)

ZANKOV, Z.: **Untersuchungen zur Morphologie der Kotyledonen von Edelsorten** · Recherches sur la morphologie des cotylédons des vignes fructifères (bulg. m. russ., franz. Zus.)
Gradinar. Lozar. Nauka (Sofia) **18** (5), 70—75 (1981)
Vissh Selskostop. Inst. „V. Kolarov", Plovdiv, Bulgarien

An mehreren Rebsorten und Kreuzungen wurde die Morphologie der Keimblätter studiert. Es kommen lanzettliche, herzförmige und lindenblättrige Formen vor. Innerhalb einer Sorte sind die morphologischen Unterschiede gering, in Kreuzungspopulationen werden Spaltungen beobachtet. Die Größe der Keimblätter variiert ziemlich stark, von 0,87 bis 4,90 cm^2. Auch verschiedene Anomalien, wie Tricotyledonen, Fasziationen, Fusionen von 2 Cotyledonen, die genetischen Charakter aufweisen, kommen vor. Manche dieser Pflanzen sind nicht lebensfähig, andere werden zu normalen Reben. *D. Pospíšilová* (Bratislava)

C. PHYSIOLOGIE

ARUTYUNYAN, E. A.: **Fertility of vine buds depending on shoot growth strength** · Fruchtbarkeit von Rebknospen in Abhängigkeit von der Wachstumskraft der Triebe (russ. m. armen., engl. Zus.)
Biol. Zh. Armenii (Erevan) **34**, 903—906 (1981)

In the grapevine cv. Pinot noir, the influence of shoot diameter (< 8.5 mm = I; 8.5—10 mm = II; and > 10 mm = III, measured between the 2nd and 3rd internode) on fertility, i. e. on the number of inflorescences and the number of flowers/inflorescence in winter buds, were investigated. 100 shoots were cut and cultivated at 27 °C for 6 weeks in the greenhouse; then the winter buds were analysed. A higher potential and actual fertility was found along the whole shoot in shoots with diameters larger than 10 mm: 13.36 inflorescences in III compared with 12.02 (II) and 11.42 (I), respectively, and 1650 flowers/inflorescence (III) compared with 1415 (II) and 1219 (I), respectively. On thicker shoots, also larger inflorescences were found: in III 90.2 % of large inflorescences, in II 84.6 % and in I 73.3 %. Thus, in Pinot noir the fertility of thicker shoots is considerably higher than that of thinner ones. *I. Tichá* (Prag)

BROQUEDIS, M., BOUARD, J.: **Dessèchement de la rafle et teneur en acide abscissique des pépins** · Stiellähme and the abscisic acid content of the seeds (engl., dt., span., ital. Zus.)
Connaiss. Vigne Vin (Talence) **15**, 261—268 (1981)
Lab. Physiol. Vég. Ampélol., Univ. Bordeaux I, Talence, Frankreich

In 3 subsequent years the abscisic acid (ABA) content of seeds taken from berries of clusters showing various stages of stiellähme was estimated using HPLC. The ABA content was always higher in seeds of clusters parts of which showed stiellähme. Seeds from the distal part of the rachis known to be more sensitive to stiellähme than the proximal part contained somewhat more ABA. The possibility of a relation between stiellähme and the ABA content of the seeds is discussed.
H. Düring (Geilweilerhof)

COLLALTO, G. di, PISANI, P. L., TESTI, I.: **Observations on pollen grain transport and cross-pollination in *Vitis vinifera*** · Beobachtungen zu Pollentransport und Fremdbestäubung bei *Vitis vinifera* (ital.)
Riv. Viticolt. Enol. (Conegliano) **35**, 91—99 (1982)
Ist. Colt. Arbor., Univ. Florenz, Italien

In *Vitis vinifera* the pollination is partly done by bees, but mostly by wind. Nevertheless, the pollen grains of *Vitis* do not possess particular structures that facilitate their transport in the air, so that evaluations of the pollen amount present in the air of several vineyards demonstrate that the pollen amount rapidly decreases still in proximity of the grapevines. This observation appears of great interest whenever the vine cultivars are male-sterile (see Picolit) and absolutely need cross-pollination to bear fruits. *L. Carraro* (Mailand)

DELOIRE, A.: **Influence de solutions hormonées sur l'histogénèse de greffes compatibles du genre *Vitis*** · Influence of hormonal solutions on the histogenesis of compatible grafted vines
Progr. Agric. Vitic. (Montpellier) **99**, 122—124 (1982)
Lab. Biol. Vég., Univ. Sci. Tech., Montpellier, Frankreich

Considering the importance of the production of grafted vines from an economical point of view, it is particularly necessary to improve the formation of callus tissue around the graft union. A histological study has been carried out on the role played by hormones on callus and root production of grafted vines: Grenache N. grafted on SO 4. Before grafting, rootstocks have been immersed in solutions of IAA, IBA or NAA (2 concentrations 4×10^{-4} M and 1×10^{-4} M). At the beginning of the stratification, the use of IAA or NAA promotes an early formation of callus mass. Towards the end of the stratification, all hormonal solutions have given the same results; root formation is also promoted, independent of hormone and concentration. Striking in the nursery is significantly made easier by a treatment with a 4×10^{-5} M NAA solution. Authors definitely report that hormonal solutions favour callus and root formation as well as shoot elongation, but the best conditions of use remain to be settled. *C. Duménil* (Reims)

DOBROLYUBSKII, O. K., FEDORENKO, I. V., TANURKOV, G. R.: **Influence of micronutrients on the water content of grapevines** · Einfluß von Spurenelementen auf die Wasserbindung bei Reben (russ.)

Agrokhimiya (Moskau) (12), 86—89 (1981)
Sel'skokhoz. Inst., Odessa, UdSSR

Grapevines of the cv. Aligote in south Ukraine were sprayed with 0.05 % Zn and Mn sulphate twice a year: before flowering and at berry formation. During the vegetation period, the whole water content of the leaves decreased approx. by 10 % (from 75 to 65 %). In young leaves, there was more free water and less bound water; in old leaves, free water content diminished and bound water content increased. Spraying the plants with Zn and Mn solutions had nearly no effect on the whole water content but the bound water content increased and the free water content decreased in leaves. Analogous changes were also found in one-year-old shoots. Under the influence of Zn and Mn, the increased content of bound water compared with free water content correlated with increasing frost resistence of the plants. The yield increased from 1.045 to 1.192 kg m^{-2}, the sugar content approx. by 1.4 %. *I. Tichá* (Prag)

HAYDU, Z.: **Preliminary results of in vitro grapevine cultures** · Erste Ergebnisse bei in-vitro-Kulturen von Reben (ungar. m. russ., dt. Zus.)
Szölötermesztés Borászat (Kecskemét) **3**, (4) 8—9 (1981)

In the Institute of Viticulture Kecskemét a tissue culture laboratory has been established. The main tasks are: production of virus-free materials and micro-propagation of varieties and clones, respectively. The aims are to find optimal combinations of hormones and nutrients as well as cultivation methods for the individual varieties, redifferentiation of plants from callus, anther etc. cultures, and the use of tissue cultures in physiological studies (e. g. cold tolerance). The work was commenced with 18 wine and table grapes and 3 stock cvs. Except some young cultures, which were still unsuitable for evaluation, all tissue cultures from apices, buds, stems or petioles proliferated and produced calli or regenerated shoots. *F. Sági* (Szeged)

HORIUCHI, S., NAKAGAWA, S., KATO, A.: **General characteristics of bud dormancy in the vine** · Allgemeine Charakteristika der Knospenruhe bei Reben (japan. m. engl. Zus.)
J. Japan. Soc. Hort. Sci. (Tokyo) **50**, 176—184 (1981)
Dept. Hort., Univ. Osaka, Japan

Changes in bud dormancy during autumn and winter were investigated using cuttings of Delaware. Bud dormancy was deepest at the beginning of autumn, but decreased gradually from late autumn to early winter. And it was deeper in the basal buds of shoots than in the apical ones. The starch content increased in shoot and bud as the dormancy became deeper, while it decreased as dormancy was broken. The sugar content was kept constant in both tissues during the period of deep dormancy and increased as dormancy was broken. The endogenous inhibitors were found in the shoots with dormant buds and their inhibitory activity was correlated to bud dormancy. In addition, ABA was detected in these inhibiting substances by TLC and GLC. Oxygen uptake as well as carbon dioxide production in buds decreased gradually in the period of dormancy, while respiratory activity was kept at a constant rate during the subsequent period of enforced dormancy.
Y. Motomura (Sendai)

ISOLA, R.: **Effect of GA and CCC on flower bud differentiation on lateral shoot of Muscat of Alexandria grapes** · Wirkung von GS und CCC auf Blüten- und Knospendifferenzierung bei Seitentrieben der Rebsorte Muscat of Alexandria (m. japan. Zus.)
Bull. Hiroshima Agricult. Coll. **6**, 405—408 (1981)
Lab. Pomol., Hiroshima Agricult. Coll., Hiroshima, Japan

2000 ppm CCC was applied with or without 10 ppm GA to greenhouse grown Muscat of Alexandria shoots 2 weeks before anthesis. CCC alone increased cluster weight, and berries/cluster. It decreased berry size and shoot length in relation to untreated controls. GA + CCC resulted in intermediate cluster weight and in longer shoots and reduced cane weight. The most striking response noted was the effect on fruitfulness of summer lateral shoots (second crop). CCC alone doubled the number of second crop clusters. The combination, GA + CCC, resulted in more summer lateral growth, but completely eliminated inflorescence development on lateral shoots. — There is no statistical analysis and potential effects on subsequent performance of the canes formed from treated shoots are not given. *R. M. Pool* (Geneva)

MANNINI, F., WEAVER, R. J., JOHNSON, J. O.: **Effects of early bloom sprays of ethephon on irrigated and non-irrigated vines of Zinfandel grapes** · Einfluß von Ethephon-Behandlung bewässerter und unbewässerter Reben der Sorte Zinfandel bei Blühbeginn
Amer. J. Enol. Viticult. **32**, 277—279 (1981)
Dept. Viticult. Enol., Univ. California, Davis, Calif., USA

Ethephon (2-chloroethylphosphonic acid) was applied to mature Zinfandel grapevines at early bloom to investigate its effects on the quality and quantity of primary and secondary crops. Ethephon was applied to the apical portion of the vines (1000 ppm), to the cluster area only (300 ppm) or to topped vines (1000 ppm). All treatments resulted in non-significant increases in yield of the primary crops. Weight/cluster was increased by the 300 ppm ethephon treatment in the secondary crop. In the primary crop berry weight and volume was reduced in topped vines relative to the 300 ppm ethephon treatment (cluster area only) and to the 1000 ppm treatment (apical portion only). Ethephon treatment of the cluster area resulted in a significant increase in soluble solids. — Attention is drawn to the large reduction in the secondary crop by the 1000 ppm ethephon treatment because of its significance for successful mechanical harvesting. *B. Loveys* (Adelaide)

PALMA, B. A., JACKSON, D. I.: **Effect of temperature on flower initiation in grapes** · Die Wirkung der Temperatur auf die Blütenbildung der Rebe
Bot. Gaz. (Chicago) **142**, 490—493 (1981)
Dept. Hort. Landscape Parks, Lincoln Coll., Canterbury, New Zealand

Young winterbuds of 3 cultivars — Chasselas doré, Pinot noir and White Riesling — were marked when subtending leaves were 1.0 cm in diameter. Temperature and duration of sunshine were recorded during the period 9 d before and after marking date. The number of flowers/shoot in the following flowering season was highly correlated to maximum day temperatures 4 d after marking, i. e. when subtending leaves were 1.5 cm in diameter. No correlation exists to duration of sunshine or to any day temperature before and after marking day.
G. Alleweldt (Hohenheim und Geilweilerhof)

SASAHARA, H., TADA, K., IRI, M., TAKEZAWA, T., TAZAKI, M.: **Regeneration of plantlets by meristem tip culture for virus-free grapevine** · Anzucht virusfreier Reben durch Meristemspitzenkultur (japan. m. engl. Zus.)
J. Japan. Soc. Hort. Sci. (Tokyo) **50**, 169—175 (1981)

To obtain virus-free Zenkoji grapes, a method of meristem tip culture was established. The basal media determined by MURASHIGE and SKOOG (MS-62, 1962) or GALZY (1964) were slightly modified and growth regulators were added according to the growing stages from incubation of shoot apex to entire plant. In a 1st stage, half of the medium concentration MS-62 was used and added were 0.1 mg/l NAA, 1 mg/l BA, 0.5 mg/l kinetin, 4 mg/l adenine, 30 g/l sucrose, and 6 g/l agar. In a 2nd stage, 0.2 mg/l IAA instead of 0.1 mg/l NAA was added to the same medium. In a 3rd stage, BA and sucrose concentrations of the medium were reduced to 50 % of that of the 2nd stage. In a 4th stage (roots are formed), 0.1 mg/l NAA was added to the GALZY medium. In the 5th stage (shoots and roots grow), GALZY medium only was used. Furthermore, continuous multiplication of virus-free grapes was achieved by transplanting repeatedly a part of growing shoots at the 3rd stage to the medium of the 2nd stage. *R. Isoda* (Hiroshima)

SHULMAN, Y.: **Shedding of the upper parts of grapevine shoots** · Abszission von oberen Sproßteilen der Weinrebe
Scientia Hort. (Amsterdam) **16**, 357—365 (1982)
Inst. Hort., Agricult. Res. Organ., Volcani Center, Bet Dagan, Israel

Shedding of upper, unlignified parts of grapevine shoots ("selfpruning") frequently occurs during autumn or winter. Ethephon sprays at 1500 mg · l^{-1} in May and June on Perlette and Queen of the Vineyards grapes also caused abscission of the shoot tip. Dipping the shoot bases in ethephon solutions of 100 and 1000 mg · l^{-1} evoked complete leaf abscission and 70—100 % separation of the internodes within 6 d. Ethylene at 200 vpm separated most internodes of shoot explants after 8 d, the lower internodes being less sensitive. The induced separation occurred in a boundary zone above the node, formed between the diaphragm and the pith, as in the natural abscission process. A

treatment with the auxin 2,4,5-T (1 mg · l^{-1} or more) prevented the internode sections from separation. *F. Sági* (Szeged)

STAUDT, G.: **Die Abhängigkeit der Pollenkeimung und des Pollenschlauchwachstums von der Temperatur bei *Vitis rupestris in vitro*** · Dependence of pollen germination and pollen tube growth on the temperature with *Vitis rupestris* in vitro (m. engl., franz. Zus.)
Mitt. Klosterneuburg **31**, 223—230 (1981)
Staatl. Weinbauinst., Freiburg/Br.

The optimum for the germination of pollen of *Vitis riparia* and for the tube growth is around 28 °C and perhaps higher. Below 15 °C germination is abnormal, but growth is normal, whereas a temperature below 2 °C inhibits germination completely. Between 5 and 10 °C, the growth of the pollen tube is too slow and too short for a normal fertilization. A cold treatment (2—5 °C) reduces the subsequent growth at normal temperature. Some pollen tubes are, however, always long enough to allow fertilization. *R. Blaich* (Geilweilerhof)

TAKAGI, N., MORIMOTO, M., MAOTANI, T.: **Factors influencing the incidence of drought spot of grapes** · Faktoren, welche die „Trockenfleckenkrankheit" bei Trauben verursachen (japan. m. engl. Zus.)
J. Japan. Soc. Hort. Sci. (Tokyo) **50**, 185—191 (1981)
Okayama Prefect. Agricult. Exp. Sta., Sanyo, Okayama, Japan

The physiological disorder of berries called "drought spot" (Shukukabyo, Japanese name) has often occurred in Muscat of Alexandria grown in the greenhouse. A temporary water stress of berries resulting from competition between the fruits and the vegetative parts was identified as the cause of this disorder. However, irrigation and intermittent mist increased the occurrence of the disorder in spite of decreased water stress of the vines. Root pruning showed decreased disorder in case of severe water stress of the vines. Solar radiation, numbers of berries and leaves, and soil aeration had no relationship to its occurrence. Girdling promoted the berry growth. The better berry growth was, the more the disorder was found. Among the shoots of the vines, the disorder occurred severely in the basal parts though no difference of water stress of the leaves was found between them. Therefore, "drought spot" must be due to factors other than water stress. *R. Isoda* (Hiroshima)

UEDA, H., NAITO, R.: **Effects of shoot vigour on the induction of seedless berries by GA application in Muscat Bailey A grape** · Einfluß der Wuchskraft von Trieben auf die Anlage von kernlosen Traubenbeeren durch GS-Anwendung bei der Sorte Muskat Bailey A (japan. m. engl. Zus.)
J. Japan. Soc. Hort. Sci. (Tokyo) **50**, 192—198 (1981)
Fac. Agricult., Shimane Univ., Matsue, Japan

On the fruit canes of cane-pruned vines, percentages of seedless berries in the clusters, obtained by prebloom GA application, were always higher on the apical, vigorous shoots than on the basal, less vigorous shoots, and increased with the increment in the number of carpels/berry. On the spurs of spur-pruned vines, however, shoot vigour and, consequently, seedlessness of their GA-treated clusters differed little with the position of shoots on the spur. — In GA-untreated, cane-pruned vines, the number of seeds/berry was smaller, while the number of carpels/berry was larger in the clusters of vigorous shoots than in those of less vigorous shoots, as the number of seeds/carpels decreased markedly with increasing number of carpels, regardless of shoot vigour. The number of seeds/carpel was markedly smaller on the vigorous shoots than on the less vigorous shoots. — Based on these facts, differences in seedlessness of GA-treated clusters, due to shoot vigour, were discussed. *Y. Motomura* (Sendai)

UNGURYAN, V. G., MOKANU, E. S., KHANIN, YA. D., PALAZOV, S. A.: **Chlorosis in Moldavia vineyards** · Chlorose in den Rebanlagen der Moldau (russ.)
Sadovod. Vinogradar. i Vinodel. Moldavii (Kishinev) **36** (12), 23—26 (1981)
Sel'skokhoz. Inst. Im. M. V. Frunze, Kishinev, UdSSR

A chlorosis occurring most frequently in Moldavia is due to the conditions of plant cultivation. Authors developed a scale for evaluating chlorosis in grapevines. The plants were more chlorotic on

carbonate and strongly leached soils than on gray and brown forest soils. Authors collected values on the correlations between chlorosis, soil type and characteristics as humus content, carbonate content, pH, Ca activity in the soil solution, and the cvs. Based on these results, recommendations for cultivating different grapevine cultivars on different soil types are given. *I. Tichá* (Prag)

D. BIOCHEMIE

MESÍAS, J. L., MAYNAR, J. I., MARECA, I.: **A contribution to the study of the volatile fraction of grapes from Tierra de Barros (Badajoz, Spain)** · Untersuchungen über flüchtige Komponenten von Trauben aus Tierra de Barros (span. m. engl. Zus.)
Rev. Agroquím. Tecnol. Aliment. **21** (1), 114—120 (1981)
Dept. Bioquím., Fac. Cienc., Badajoz, Spanien

Aroma materials were isolated from Cayetana and Pardina grape skins and juice of the Tierra de Barros district of Spain by solvent extraction [continuous with pentane for 240 h, with CH_2Cl_2 for 60 h, or with ether-pentane (2:1) for 240 h] or by phase separation from a mixture of acetone and a distillate of the juice saturated with $MgSO_4 \cdot 7H_2O$ and $NaH_2PO_4 \cdot H_2O$. Separation of components of the isolates was by gas chromatography on a 2 m × 3.2 mm Carbowax 20M (20 % on Chromosorb W, 60—80 mesh) column temperature programmed from 65 to 160 °C at 2°/min. Quantitation was with a Hewlett-Packard 5830 GC, and identification with GC-MS (PAY 104 GC and AEI 30 SB MS). Found were 12 alcohols (C_1 to C_6), 6 carbonyls (C_1 to C_6) and 9 esters (C_2 to C_{12}). Evolution of volatiles roughly paralleled that of sugar but maxima did not coincide. *A. D. Webb* (Davis)

E. WEINBAU

AGULHON, R., DUMARTIN, P., HEINZLE, Y., ROZIER, J. P.: **Essai de maîtrise de quelques plantes résistant à l'action des herbicides couramment utilisés dans le vignoble** · Trials on the control of some weeds resistant to common herbicides used in vineyards
Vignes et Vins (Paris) (308), 3—6 (1982)
Inst. Tech. Vigne Vin, Nîmes, Frankreich

A selection of some summer grasses (*Digitaria* sp., *Setaria* sp., *Echinochloa crus galli*) and of horsetail (*Equisetum* sp.) occurred in French vineyards after a long term application of common herbicides. Trials have shown that a good control of grasses can be obtained by a pre-emergence application of different mixtures (simazine + oryzalin, diuron + simazine + oil). Only benzonitriles (dichlobenil and chlorthiamid) gave a satisfactory control of horsetail. *B. Daris* (Athen)

BONFILS, P.: **Les composantes du bio-climat viticole du Centre-Var** · Die bioklimatischen Bedingungen in der Weinbauregion von Centre-Var
Progr. Agric. Vitic. **99** (4), 88—93 (1982)

Die Weinbaugebiete des Departements Var unterscheiden sich hinsichtlich ihrer Höhenlage sowie der Temperatur- und Niederschlagsverhältnisse z. T. nicht unerheblich voneinander. Daher sind optimale Traubenerträge und Weinqualität nur dann zu erzielen, wenn die Auswahl der angebauten Rebsorten unter weitgehender Beachtung der bioklimatischen Gegebenheiten am Standort und der Wärmeansprüche der Sorte erfolgt. Es wird empfohlen, durch ergänzende Temperaturmessungen die klimatischen Standortunterschiede noch feiner zu analysieren.

M. Klenert (Geilweilerhof)

CARBONNEAU, A.: **Apports biologiques récents à l'étude des systèmes de conduite** · Recent biological contributions to the study of training systems
Bull. OIV **55**, 273—285 (1982)
Sta. Rech. Viticult. (INRA), Pont-de-la-Maye, Frankreich

This is a timely review of aspects of grapevine physiology which can be modified by training systems. The review emphasises that certain disciplines — biology, economics and engineering —

are converging in their attitude towards training systems. The question of "designing machines for vineyards" or alternatively "designing vineyards for machines" is debated. In the short term, the latter approach is often employed. Recent studies have shown the possibility of obtaining an excellent microclimate for leaves and fruit, guaranteeing yield and quality, by using new training systems with low density plantations. The review covers the effect of management decisions on both soil and aerial climates, with a particular emphasis on integrating these effects with whole plant biology. The desirability of integrating biological and engineering research is demonstrated by the recent formation of G.E.S.C.O. (study group of training systems). *R. E. Smart* (Ruakura)

CASTELL, A.: **Systèmes de conduite favorables à la qualité** · Training systems that favour grape quality
Bull. OIV **55**, 187—202 (1982)

The review paper discusses the present state of vine training and trellising in France. It stresses that the traditional system of growing vines on low trellises at narrow row spacing gives regular crops of high quality, but demands high input of labour and hinders mechanization. Vines planted at wide row spacing and trained on high trellises, used in some French vineyards (e. g. Hautes Côtes bourgoignonnes), demonstrate the factors favourable for optimizing either grape quantity or quality. Efforts are being made to mechanize operations in traditional vineyards. In addition, experiments are under way to combine the advantages in cost of production of widely spaced high vines with the good quality of wine obtained from low, narrowly spaced vines. This work is coordinated by G.E.S.C.O. (Groupe d'études des systèmes de conduite) that meets regularly and publishes proceedings. *P. May* (Adelaide)

CLINGELEFFER, P. R., MAY, P.: **The swing-arm trellis for Sultana grapevine management** · Der Wendearmdrahtrahmen für die Erziehung von Sultanareben
S. Afr. J. Enol. Viticult. (Stellenbosch) **2**, 37—44 (1981)
Div. Hort. Res., CSIRO, Merbein, Vic., Australien

The swing-arm trellis is based on a canopy concept developed for raspberries. The trellis consists of a right angle "Vee", with 3 wires on each side. During the growing season, one side is vertical which supports shoots to be used as fruiting canes the following year. The other side is horizontal, supporting fruiting canes. At winter pruning, the trellis is rotated, with the previously vertical arm becoming horizontal and vice-versa. — This trellis system was compared to standard trellis system with canes wrapped along a single wire. Over 4 seasons, yield was 1.3 times greater for fresh fruit and 1.25 times more for sugar. The yield differences occurred mainly in 2 seasons and were due to more bunches — in turn an effect of more nodes, better bud burst and more fruitful nodes. Vines on the swing-arm trellis had lower pruning weights. Implications of the trellis for mechanisation of harvesting and pruning are discussed. *R. E. Smart* (Ruakura)

DIMCHEV, V., SLAVOV, S.: **Influence of the thickness of fruiting shoots on fertility, quality and quantity of the harvest (cv. Rkaciteli)** · Influence de la grosseur du rameau fructifère sur la fertilité, la quantité et la qualité de la récolte du cépage Rkatsiteli (bulg. m. russ., franz. Zus.)
Gradinar. Lozar. Nauka (Sofia) **18** (2), 95—99 (1981)
Opitn. Sta. Lozar. Vinar., Varna, Bulgarien

The influence of the thickness of the fruiting shoots on fertility and quantity of Rkatsiteli grapes around the Black Sea was positive, but there were no indications on the quality levels of the grapes. The limiting factor was 8 mm thickness. The experimental plantation was medium-high (32 eyes/stock) with distances 3.40 × 1.50 m. A positive effect of the thickness of shoots on fertility and the amount of grapes could be established. *J. Blaha* (Brno)

DIÓFÁSI, L., KÖRNYEI, B., IJJÁSZ, I., VEZEKÉNYI, E.: **Effect of increased stock load on the nutrient contents of grapevine leaves** · Wirkung der Belastungserhöhung des Stockes auf den Nährstoffgehalt der Traubenblätter (ungar. m. russ., dt. Zus.)
Szölötermesztés Borászat (Kecskemét) **3** (2), 1—7; (4), 1—7 (1981)
Forschungsinst. Weinbau, Kellerwirtsch., Kecskemét, Ungarn

An Chardonnay, rotem Traminer, Gewürztraminer, Müller-Thurgau, Leányka, Pinot blanc, Zier-

fandler, Furmint, Welschriesling wurde 1971—75 bei sonst gleichgeschnittenen Reben die Traubenzahl auf 0, 30 oder 60 eingestellt. Zur Zeit der Blüte und der Beerenreife wurde der Gehalt der Blätter an (N, P, K, Ca, Mg, Zn, B, Fe, Mn) untersucht. — Mit steigender Belastung nahm der Gehalt an N, P, K, B ab, und zwar der P-Gehalt am stärksten, während die K-Konzentration erst in der Beerenreife eine starke negative Korrelation zum Ertrag zeigte. *A. Hegedüs* (Budapest)

DOBROLYUBSKII, O. K., STRAKHOV, V. G., VIKTOROVA, G. M.: **Effect of chromium, molybdenum and tungsten on water exchange, activity of some ferments and productivity of grapes** · Wirkung von Chrom, Molybden und Wolfram auf den Wasserhaushalt, die Aktivität einiger Fermente und die Ertragsleistung der Rebe (russ.)
Agrokhimiya (Moskau) (11), 108—113 (1981)

Grapevine plants of the cv. Aligote, 6—8 years old, were sprayed with 0.03 % sodium chromate, sodium molybdate or sodium tungstate before flowering and at the beginning of berry ripening. Cr, Mo and W increased the amount of bound and free water in grape leaves in the period studied, i. e. from flowering to berry ripening. The permeability of protoplasma was increased by Cr and W and decreased by Mo. The activity of ATPase in the chloroplasts and mitochondria was lowered under the influence of Cr, Mo and W, whereas the activities of phosphorylase and invertase were increased, especially at flowering and berry formation. Spraying the plants with Cr, Mo and W enhanced the biomass and yield of berries from 2 to 12 %, and improved the quality of the berries: their sugar content was increased and the titratable acidity decreased. *I. Tichá* (Prag)

FIDAN, Y., ÇELIK, S., TAMER, M. S.: **Effect of the gibberellic acid and ringing on the accumulation of the cellulose in the pedicel and stem of table grape varieties** · Wirkung von Gibberellinsäure und Ringelung auf die Akkumulation der Cellulose in Beerenstielen und Rappen von Tafeltraubensorten (ital. m. engl. Zus.)
Vignevini (Bologna) **8** (12), 35—39 (1981)
Dept. Viticult. Hort., Fac. Agricult., Univ. Ankara, Türkei

The effect of girdling and gibberellic acid (GA_3) treatments on the abscission force of the berry (ARF) and the rupture force of the pedicel (PRF) in Müsküle and Sultana cvs, was investigated. Clusters of Müsküle were dipped in 20, 50, 75, 100, 150 ppm GA_3 and those of Sultana in 25—50 ppm. The shoots were girdled beneath the cluster. — ARF, PRF and accumulation of cellulose in the pedicel and in the stem were increased in proportion to the increased doses of GA_3 used. The increase of PRF depends on the accumulation of cellulose in the stem and in the pedicel and on increased lignification at the "cap stem". An abscission layer is formed, the ABF is increased and the berry can be removed only without the pedicel, due to GA_3 treatment; PRF increases more than the ABF. The increase of ABF and PRF and of cellulose are correlated with the time of GA_3 treatment and girdling: treatment during the time of cellular division seems to be the most efficient.
S. Guelfat-Reich (Bet Dagan)

HEINZLÉ, Y.: **Évolution de la flore des vignes dans le vignoble français** · Evolution of the weed flora in French vineyards
Vignes et Vins (Paris) (307), 15—18 (1982)
Inst. Tech. Vigne Vin, Mâcon, Frankreich

A survey on the weed flora and its evolution, after the application of herbicides, was held in French vineyards. Results summarised in tables and classified in large geographical regions have shown that some weeds *(Stellaria, Diplotaxis)* are gradually disappearing from the vineyards, others *(Convolvulus, Cynodon, Amaranthus, Equisetum)* are still existing and a third group of weeds *(Asparagus, Digitaria, Echinochloa, Rubia, Sedum, Setaria)* appears in the vineyards, after a long term application of herbicides. The necessity of more detailed and precised study has been pointed out.
B. Daris (Athen)

HRONSKY, Š.: **Einfluß optimaler Blattfläche auf die Quantität und Qualität der Traubenernte** · Influence of optimum leaf area on quantity and quality of the vintage (slowak.)
Vinohrad (Bratislava) **19**, 170—171 (1981)

An mittelhoch erzogenem Welschriesling wurden Holzzuwachs, Blattfläche, Traubenertrag und

Zuckerproduktion bei einer Belastung von 18, 24 oder 36 Augen/Rebe gemessen. — Mit der Belastung stiegen die Blattfläche (100 — 108 — 125 %), die Zuckerproduktion/m² Blattfläche (72,3 — 81,4 — 88,5 g), der Ertrag (100 — 122 — 142 %) und die Traubenzahl (100 — 120 — 150 %). Die Knospenfruchtbarkeit im Folgejahr wurde durch hohe Belastung nicht beeinträchtigt. Das Beerengewicht sank bei steigender Belastung (100 — 97 — 95 %), der Zuckergehalt der Beeren war mehr vom Wetter als vom Ertrag abhängig. Während bei geringerer Belastung die Triebe schneller wuchsen, war bei stärkerer Belastung der Zuwachs an Gesamtmasse rascher, und es kam zu einer Verschiebung der Gewichtszunahme von der Holz- mehr auf die Blatt- und Traubenmasse.

V. Kraus (Lednice na Morave)

KUBEČKA, D.: **Effects of irrigation on the grape yield under different soil conditions** · Einfluß der Bewässerung auf den Traubenertrag unter verschiedenen Bodenbedingungen (slowak.)
Vinohrad (Bratislava) **19**, 248—249 (1981)
Komplexný Výskumný Ústav Vinohradn. Vinár., Bratislava, CSSR

Very often, vineyards are planted on soils unfavourable for vine culture (humidity, frost damage) but with favourable irrigation conditions. On these sites, convenient rootstocks and planting systems should be chosen in order to secure the economic effect of the plantation. Examples from south Slovakia demonstrate that not only the grape quality is lowered, but also yellows of trees can be decisive for the general economic situation. *J. Blaha* (Brno)

LILOV, D., KHRISTOV, KH.: **The effects of some growth substances on the yield of grapes** · Der Einfluß einiger Wachstumsregulatoren auf den Ertrag der Weinreben (bulg.)
Lozar. Vinar (Sofia) **30** (6), 7—10 (1981)

In a 2-year-study, Authors examined the effects of plant regulator treatments on 7 grapevine cultivars. GA treatment with 0.005 % was most effective and resulted in forced ripening and increased sugar content in the berries. Use of CCC 6 % in water solution increased the quality of the grapes and Flordimesid did not affect the amount of the harvest, but increased the quality of grapes. Under normal viticultural conditions, the use of plant regulators can therefore be recommended.

J. Blaha (Brno)

MENKE, F.: **Vorbereitung des Grundstückes bei der Erstellung von Rebneuanlagen** · Preparation of the plot for planting a vineyard
Obstbau Weinbau (Bozen) **19**, 35—39 (1982)

Considering the conditions in South Tyrol, Author describes in detail the construction of terraces for mechanical cultivation. He gives short descriptions of the problems concerning soil exhaustion, soil improvement, trenching, fertilizing and soil desinfection. In conclusion, he estimates the total expenses of a new plantation. *G. Mayer* (Klosterneuburg)

MÜLLER, L.: **Rapport entre la qualité du vin produit, le cépage et l'environnement** · Relationsships between wine quality, variety and environment
Bull. OIV **55**, 97—107 (1982)
HBLuVA f. Wein- Obstbau, Klosterneuburg, Österreich

Assessment of wine quality only by composition is difficult, as conceptions on taste differ according to viticultural regions. Basis of quality production is maturity. Variety determines characteristics, which, in turn, depend on environment. In Austria, quality wines should have a minimum of 73 °Oe. Fruity, fresh, dry and low alcohol wines are now in demand. Accordingly, grüner Veltliner takes up over 32 % of the production, Müller-Thurgau 10 %. Clonal selection has contributed much to improved yield and quality of grapes, e. g. non-selected Veltliner yielded 56 hl/ha with 16.7 °Kl, a selected clone 90 hl/ha with 17.6 °Kl must yield. 3 new varieties, Goldburger, Blauburgunder, Zweigelt were developed by hybridization. Precipitation had less influence than temperature on must density. Years with better quality had more hrs of sunshine over 15 °C. Bunch thinning of 35 % decreased yield only by 25 %, with much higher quality (77 °Oe against 61 °Oe).

P. Spiegel-Roy (Bet Dagan)

MURISIER, F., RYSER, J.-P., AERNY, J.: **Fumure potassique et acidité des moûts** · Potassium fertilization and must acidity (m. engl., dt., ital. Zus.)
Rev. Suisse Viticult. Arboricult. Hort. (Changins) **14**, 33—36 (1982)
Sta. Féd. Rech. Agron. Changins, Nyon, Schweiz

2 fertilization experiments on Chasselas are reported, in view of recent suggestions that K fertilization affects must acidity. 6 years data from an experiment comparing different rates of P, K and Mg at Leytron showed no significant effect on yield or must sugar and acidity. Increasing simultaneously the rates of P, K and Mg fertilizer increased the level of foliar K and decreased Ca and Mg levels. High rates of fertilizer also increased must K levels, with no significant effect on pH, acidity or malic and tartaric acid contents (must analysis results not presented). — A 2nd experiment at Pully involving 18 years data, again showed no influence of increased N + P + K fertilization on yield, pruning weight, sugar or acidity. Authors conclude that heavy K fertilization cannot be used to reduce acidity, although they point out the necessary long term nature of such experimentation.
R. E. Smart (Ruakura)

RYSER, J.-P.: **Vers l'utilisation pratique du diagnostic foliaire en viticulture et en arboriculture** · Towards the practical use of leaf analysis in vineyards and orchards (m. engl., dt., ital. Zus.)
Rev. Suisse Viticult. Arboricult. Hort. (Changins) **14**, 49—54 (1982)
Sta. Féd. Rech. Agron. Changins, Nyon, Schweiz

The use of leaf analysis in grapevines and orchards is described. On vines, 25 leaves per plot are taken at veraison from nodes carrying the proximal bunch. The leaves are washed, ashed at 105 °C and ground. K, Ca and Mg are determined by atomic absorption, P by colorimetry. The results are expressed as % dry matter, N + P + K vs. K + Ca + Mg, triangles of N, P, K and K, Ca, Mg, ratios of (N + P)/K, Ca/P, K/Ca and K/(Ca + Mg), and K/Mg. — 2 types of analysis are proposed, either done regularly at a given stage of development to complement soil analyses or done after accidents. Reference values are essential to allow proper evaluation of the results to be used for determining fertilizer needs; they are given for Swiss conditions.
P. May (Adelaide)

STRAKHOV, V. G., CHAZOVA, T. P.: **Effect of chromium, molybdenum and tungsten on the quality of grapes and wines** · Einfluß von Chrom, Molybdän und Wolfram auf die Qualität der Reben und des Weines (russ.)
Sadovod. Vinogradar. i Vinodel. Moldavii (Kishinev) **36** (10), 58—60 (1981)

The effect of feeding with Cr, Mo and Wo on the quality of grapes and wines was studied. The acid and alkaline phosphatase activities were determined in immature, semimature and completely mature berries, and also in grape leaves. In all cases, the phosphatase activities decreased in treated berries compared with the control. Concerning wines, it was found that the addition of these microelements increased the values of alcohol, titratable acidity, total extract, phenolic compounds, and taste.
S. A. Abou-Donia (Alexandria)

VALAT, C., GRENAN, S., DELOIRE, A.: **Accidents sur greffés-soudés à la suite de l'emploi d'hormones lors du greffage sur table** · Injuries occurring on bench-grafted cuttings after application of hormones
Progr. Agric. Vitic. **99** (4), 80—82 (1982)
Lab. Biol. Vég., Univ. Sci. Tech. Languedoc, Montpellier, Frankreich

Since several years, hormones are commonly used in nurseries during the operation of grafting. These treatments of the bench-grafted vines are sometimes followed by severe injuries, some of which are described in this paper.
R. Wagner (Villeneuve-lès-Maguelonne)

WAHL, K., BENDA, I., BEESKOW, H.: **Ergebnisse aus Adaptionsversuchen mit klassifizierten Unterlagsrebsorten in Franken** · Results from adaptation experiments with classified rootstock varieties in Franconia
Bayer. Landwirtsch. Jahrb. **58** (Sonderh. 2), 17—27 (1981)
Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

Over 8 years, adaptation experiments with several rootstock varieties were carried out on the most

important geological formations of Franconian vineyards: Urgesteinsformation (dilapidated mica-slate), Buntsandstein (loamy-sandy weathering soil), Muschelkalk (stony lime-marl), and Gipskeuper (stony, argillaceous loamy soil). — As regards the yields, it is proved that, on the one hand, the scion can determine the choice of the stock variety, on the other hand, even the soil type can be decisive to the grafting combination. With regard to sugar content and acidity, there are no relevant differences (significant variations only in particular cases). Also in case of the chosen appraisement criterias: flowering behaviour, plant vigor, and cane maturity, the correlation with productivity is not significant. — The results obtained allow more exact and concrete advice as to the choice of rootstock varieties. *B. H. E. Hill* (Lauffen)

ZILAI, J., TOMPA, B.: **Histologische Untersuchungen von nach Paraffinierung abgestorbenen Pfropfreben** · Histological test of vine grafts disintegrating after paraffine treatment (ungar. m. russ., engl. Zus.)
Kertész. Egyet. Közlemén. (Budapest) **44**, 21—26 (1981)
Univ. f. Gartenbau, Lehrstuhl f. Weinbau, Budapest, Ungarn

Infolge des extrem heißen Frühlingswetters ist das Paraffin auf den paraffinierten Pfropfreben geschmolzen, und die Pfropfreben sind abgestorben. Die histologische Untersuchung ergab, daß das Paraffin in das innere Gewebe (Weichbast und Tracheen) eingedrungen ist und dies funktionsunfähig gemacht hat. *A. Hegedüs* (Budapest)

ZYL, J. L. VAN, WEBER, H. W.: **The effect of various supplementary irrigation treatments on plant and soil moisture relationships in a vineyard (*Vitis vinifera* var. Chenin blanc)** · Wirkung verschiedener Zusatzbewässerungen auf die Pflanzen- und Bodenfeuchtigkeitsverhältnisse in einer Rebanlage (*Vitis vinifera* var. Chenin blanc)
S. Afr. J. Enol. Viticult. (Stellenbosch) **2**, 83—99 (1981)
Oenol. Viticult. Res. Inst., Stellenbosch, RSA

This paper describes soil moisture relations for an irrigation trial in the Western Cape region, South Africa. The trial was carried out in a typical Mediterranean climate with high winter rainfall and limited growing season rainfall. Root distribution studies indicated maximum concentration between depths of 300—450 mm, with 90 % of roots above 900 mm depth. Soil moisture profiles indicate that soil moisture levels are highest early in the season, up to flowering. Rainfall significantly increased moisture levels in the early season but was less effective later. Water extraction was greatest in the shallow soil layers early in the season, and later became more significant from deeper soil layers. Measurements of dawn leaf water potential show that vines were able to recover hydrature at night even when most of the soil was dried below wilting point. Crop factors for the U.S. class-A pan were low (0.2—0.3). The value depended greatly upon soil moisture conditions. This study is a classic in vineyard soil water relations for Mediterranean climates.
R. E. Smart (Ruakura)

F. BODEN

BONFILS P.: **Les sols viticoles des coteaux de Provence cantons de Brignoles et du Luc-en-Provence** · The hillside soils used for viticulture of Provence districts of Brignoles and Luc-en-Provence
Progr. Agric. Vitic. (Montpellier) **99**, 166—178 (1982)

This report describes major soil types used for viticulture. The classification is into several large groups by characteristics of relief and mother rock. 13 common viticultural soil types are described in some detail (locality, characteristics both physical and chemical, and variants). With the exception of alluvial soils, the mother rock is at shallow depth, but depth can vary within the one soil unit. In general, soils possessed fine texture, with a high cation exchange capacity. Lime content is also generally high. Levels of organic matter are low, due to climatic conditions, cultivation and

absence of organic matter addition. These additions are considered significant for ameliorating soil physical properties. Levels of P and K are generally low. Water availability depends on texture, depth and position, and should be borne in mind when selecting varieties.

R. E. Smart (Ruakura)

MORLAT, R., COURBE, C.: **Caractérisation de quelques composantes du potentiel chlorosant des différents milieux carbonatés dans le vignoble du Val de Loire** · Characterization of the constituents related to chlorotic potential of the different calcareous surroundings in vineyard soils in the Loire Valley (m. engl., dt., span., ital., Zus.)
Connaiss. Vigne Vin (Talence) **15**, 229—246 (1981)
Sta. Agron. (INRA), Angers, Frankreich

Lime-induced iron chlorosis occurs frequently on the clay-loam chalks but rarely on the glauconitic-micaceous chalks and greensands that are the 2 major calcareous soil types used for vineyards around Saumur in the Loire Valley. From extensive analyses of soils for water pH, total and active carbonate and Fe (extracted by 6 methods), it is concluded that the chlorotic potential of these vineyard soils is best characterized by their amounts of EDTA-extractible Fe. Perhaps the "index of chlorotic potential" (IPC) of Pouget and Juste (Connaiss. Vigne Vin **6**, 357, 1972; Ref. Vitis **12**, 249, 1973) should be reexamined by using EDTA instead of ammonium oxalate for Fe-extraction.

P. May (Adelaide)

G. ZÜCHTUNG

ADZHIEV, A. M., PIRMAGOMEDOV, P. M., ADZHIEV, G. N.: **Wildwachsende Reben in Daghestan** · Wild grapevines in Daghestan (russ.)
Vinodel. i Vinogradar. SSSR (Moskau) (8), 41—42 (1981)

Die Wildrebe in Daghestan ist in 3 Zonen verbreitet. Sie wächst in 300—500 m über NN mit einer Niederschlagssumme von 400—600 mm. Häufig kommt die Wildrebe im südlichen und im mittleren Landesteil vor, wo das Temperaturminimum nicht unter −11 bis −16 °C sinkt. Selten wird sie auch im nördlichen Gebiet gefunden. Sie ist meistens pilzanfällig, es kommen jedoch auch resistente Typen vor. In der Südzone ist sie der Kulturform ähnlich, in den Nordgebieten wird die typische *Vitis silvestris* gefunden. Verschiedene Formen wurden selektiert und 2 Sammlungen gegründet, in denen sie detaillierten Forschungen unterzogen wird. *D. Pospíšilová* (Bratislava)

BISSON, J.: **Application de l'étude des matières colorantes du raisin noir à la selection variétale** · Analysis of berry colorants as a means for selecting new varieties
Thèse Univ. Bordeaux II, Talence, 147 S. (1980)

Tannins and phenolics in grape berries (skin, flesh and kernels) and must of a number of grape varieties and clones were analysed and compared with other qualities of the grapes (weight, sugar content, physical properties) to obtain new methods for the selection of new varieties with more anthocyanes. Photometry of the must is recommended as a quick selection method, which should proceed the more laborious chemical analyses. — The results of the analyses of every variety and clone in different years are given in detailed graphs and tables. The anthocyan contents are continuously growing during maturation, whereas the tannins reach their maximum at an earlier time. Though the great variability of the results makes an interpretation difficult, it may be concluded that there exists a genetical basis for the different amounts of colorants in varieties and clones.

R. Blaich (Geilweilerhof)

BOUQUET, A.: **Resistance to grape fanleaf virus in Muscadine grape inoculated with *Xiphinema index*** · Resistenz von *V. rotundifolia* gegen das Fanleaf-Virus nach Inokulation durch *Xiphinema index*
Plant Disease (St. Paul) **65**, 791—793 (1981)
Sta. Rech. Viticult. (INRA), Pont-de-la-Maye, Frankreich

Vitis rotundifolia inoculated with fanleaf-infected *Xiphinema index* showed no symptoms 3 years after trials started. No virus was detected by green grafting, serological methods or mechanical in-

oculation. On the other hand, inoculations of *V. rotundifolia* were successful when grafting with scions of fanleaf-infected Rupestris St. George. This indicates no immunity but a resistance against attacks of the nematode. Reduced population densities of *X. index* or imperfect feeding can be the reason for lacking in virus transmission. Unfortunately, disadvantages of *V. rotundifolia* prevent its use, except for breeding purposes. *M. Rüdel* (Neustadt)

GOLODRIGA, P. YA., KIREEVA, L. K., USATOV, V. T., AKISHEVA, I. V.: **Die Aussichten der Rebart *V. rotundifolia* für die Züchtung auf Resistenz** · Prospects of the grapevine cv. *V. rotundifolia* for breeding to resistance (russ.)
Vinodel. i Vinogradar. SSSR (Moskau) (2), 30—32 (1982)

Die beiden amerikanischen Hybriden DRX 58-5 und DRX 60-24 (Kreuzungen zwischen *V. vinifera* L. und *V. rotundifolia* MICHX.) wurden 1974 über Frankreich in die UdSSR (Magarach) eingeführt und mit der *Polyvitis* Magarach (triploide Typen) gekreuzt. — Die sterilen *V.-vinifera* × *V.-rotundifolia*-Hybriden wurden mit Colchicin behandelt und fertile Allotetraploide erreicht, die eine hohe Reblausresistenz aufweisen. Die Kreuzungen wurden cytologisch bearbeitet. Außerdem wurde die Fertilität der hybriden Nachkommenschaft von 6 Kreuzungskombinationen geprüft: die Beerengrößen, die Samenanzahl und ihre Keimfähigkeit. Die *V. rotundifolia* wurde als Donor der komplexen Resistenz in die Kreuzungen aufgenommen. *D. Pospíšilová* (Bratislava)

HILL, G., STELLWAAG-KITTLER, F., HUTH, G., SCHLÖSSER, E.: **Resistance of grapes in different developmental stages to *Botrytis cinerea*** · Resistenz verschiedener Entwicklungsstadien von Weinbeeren gegen *Botrytis cinerea* (m. dt. Zus.)
Phytopathol. Z. (Berlin) **102**, 328—338 (1981)
Inst. Phytomed. Pflanzensch., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

Die hochgradige Resistenz junger unreifer Weinbeeren gegen *Botrytis cinerea* wird untersucht. — Konidienkeimung und Appressorienbildung sowie die Penetration der Kutikula wurden nicht durch die Resistenzfaktoren beeinflußt. In den Beerenhäuten konnten Stoffe nachgewiesen werden, die die mazerierenden Pilzenzyme hemmen. Die kondensierten Tannine, die für diese Wirkungen verantwortlich sind, werden als Proanthocyanidine beschrieben. Sie sind aus Cyanidin- und Delphinidin-Einheiten aufgebaut. Die Rolle der fungistatischen Streßverbindungen, die für die Botrytis-Resistenz ebenfalls von Bedeutung ist, wird kurz diskutiert.
O. Bachmann (Geilweilerhof)

JAQUINET, A.: **Essai d'appréciation de la variabilité généalogique d'un clone de Chasselas** · Study on appreciation of the genealogical variability in a clone of Chasselas
Rev. Suisse Viticult. Arboricult. Hort. (Changins) **14**, 58—60 (1982)

The results of the experiments conducted on the clone 14/33 of Chasselas demonstrated the difficulty to show variation among sub-clones, which are assumed to be different from each other. It may be concluded that the clone studied shows a great stability throughout the years and the vineyards of the experimental farm of Changins. Author emphasizes also the considerable fluctuation encountered, whose origin is attributed to climatic conditions and mainly to the vine itself which, after a heavy crop, seems to need a rest period. *R. Wagner* (Villeneuve-lès-Maguelonne)

KARADIMCHEVA, B.: **Besonderheiten in der anatomischen Struktur der Beerenhaut verschiedener Rebsorten im Hinblick auf die Resistenz gegen *Botrytis cinerea*** · Particularités dans la structure anatomique de la pellicule du grain de raisin en raison de la résistance à la pourriture grise des divers cépages (bulg. m. russ., franz. Zus.)
Gradinar. Lozar. Nauka (Sofia) **18** (1), 94—99 (1981)
Vissh Ikon. Inst. „Karl Marx", Sofia, Bulgarien

An 11 *Vitis-vinifera*-Sorten wurde 1973—75 die anatomische Struktur der Beerenschale (die Stärke der Kutikula, der Epidermis und der Hypodermis) untersucht, und die Anzahl der Zellschichten der Hypodermis wurde ausgezählt. Die *Botrytis*-Resistenz korrelierte mit der Stärke der Kutikula und

der Anzahl der Hypodermiszellschichten. Bei relativ resistenten Sorten (Cabernet Sauvignon, Ugni blanc, Merlot und Bukett) beträgt die Dicke der Kutikula > 2,5 µm, bei anfälligen Sorten (Aligoté, Gamza und Chardonné) < 2 µm. Dementsprechend ist auch die Anzahl der Hypodermiszellen bei den resistenten Sorten höher. Die Stärke dieser Schicht betrug bei den resistenten Sorten > 100 µm, bei den anfälligen Sorten nur 50—60 µm. *D. Pospíšilová* (Bratislava)

KOZMA, P., URBÁNYI, M., NAGY, L.: **Neuere Resultate der Kelter- und Tafeltraubenzüchtung in Ungarn** · Some new results in breeding wine and table grapes (ungar. m. russ., engl. Zus.)
Kertész. Egyet. Közlemén. (Budapest) **44**, 5—14 (1981)

Am Lehrstuhl für Weinbau der Universität für Gartenbau, Budapest, wurde die Kreuzungszüchtung 1948 begonnen. Seit dieser Zeit wurde eine Reihe von Neuzüchtungen hier erzeugt und genutzt. Als neueste Züchtungsergebnisse werden jetzt 4 Rotwein-, 2 Weißwein- und 5 Tafeltraubensorten kurz beschrieben. Die Rotweinsorten Magyarfrankos, Biborkadarka und Rubintos sind bereits vorläufig anerkannt. Diese 3 Sorten liefern einen farbstoffreichen dunkelroten, diglykosidfreie Qualitätswein. Die Neuzüchtung CSF.2. ist starkwüchsig und weniger botrytisanfällig als Kadarka. CSF.259. und CSF.47. sind frühreife, reichtragende Weißweinsorten mit würzigem, harmonischem Wein. Die Beeren aller Tafeltrauben-Neuzüchtungen (CSE.35., CSE.87., CSE.18., CSE.15., CSE.9.) zeigen eine größere Druck- und Reißfestigkeit, so daß die Transportfähigkeit der Trauben besser ist als bei den Kontrollsorten. *J. Csizmazia* (Budapest)

SAMAAN, L. G., WALLACE, D. H.: **Taxonomic affinities of 5 cultivars of *Vitis vinifera* L. as aided by serological analysis of pollen proteins** · Analyse taxonomischer Verwandtschaften von fünf Rebsorten durch serologische Tests von Pollenproteinen
J. Amer. Soc. Hort. Sci. **106**, 804—809 (1981)
Dept. Plant Breed. Biometry, Cornell Univ., Ithaca, N. Y., USA

Antisera for pollen proteins of 5 cvs. (red Roumi, white Roumi, Italia, Bez-El-Nkaah, Thompson Seedless) were prepared and cross tested by Ouchterlony- and immunoelectrophoretical techniques. Each cv. had one specific protein band. Other bands were common to all cvs. or part of them, allowing to establish taxonomic relationships. *R. Blaich* (Geilweilerhof)

H. PHYTOPATHOLOGIE

BARKAI-GOLAN, R.: **An annotated check-list of fungi causing postharvest diseases of fruits and vegetables in Israel** · Kommentierte Kontrolliste für Pilze, die bei Früchten und Gemüsesorten aus Israel nach der Ernte Krankheiten verursachen
Div. Sci. Publ., Volcani Center, Bet Dagan, Spec. Publ. (194), 36 S. (1981)

Many postharvest diseases of fruits and vegetables are caused by latent fungi which penetrate the fruit in field or orchard, but which develop after the fruit has been harvested and physiological changes of ripening and/or senescence have occurred. Quantitative differences in the relative importance of particular fungi towards a given host crop may often depend on climatic conditions, storage and shelf life temperatures and also on the different sensitivity of the host fruit in different localities. — A list of fungi, which are found in Israel in fruits and vegetables during storage and shelf life, is given. The check list includes the host, the description of the disease, a brief information about its distribution, occurrence and the extent of demage it can cause. The check list is accompanied by references from 1928 to 1981. *S. Guelfat-Reich* (Bet Dagan)

BONIFACE, J.-C., DUMARTIN, P., DUBOS, B.: **L'eutypiose de la vigne: Essais de lutte dans le vignoble bordelais** · Dying-arm disease of grapevine: control trials in Bordeaux vineyards
Vignes et Vins (Paris) (306), 16—20 (1982)

Preliminary data on the protection of pruning wounds with fungicides and antagonist microorganisms to *Eutypa armeniacae* are reported. Due to the nature of this disease conclusive results cannot

be given until a few more years have passed. Another experiment has shown that in vineyards seriously injured by *E. armeniacae* rejuvenation of vine from a basal replacement spur is not possible when plants are very much weakened by the disease. Similarly negative results were obtained using mastics to which fungicides had been added. However, top grafting seems to be a method for obtaining healthy plants even from weakened ones. In conclusion, there appears to be a connection between the vigour of the stock and susceptibility to dying-arm disease; vines grafted on 110 Richter, SO 4 and 4010 are particularly susceptible. *M. Bisiach* (Mailand)

BOUCHET, J.: **Le Black-rot. Une situation alarmante dans certains vignobles** · Black rot. An alarming problem in certain vineyards
Phytoma (Paris) (337), 36—37 (1982)

A description is given of black rot symptoms on the foliage and bunches of grapevine. Although the disease is widespread in France, only in certain vineyards of the western regions its outbreaks are becoming increasingly frequent and severe. Several factors may have contributed to the alarming recrudescence of black rot, i. e. (i) use of cultivars like Folle blanche and Gros plant that are particularly susceptible to the fungus; (ii) early rains of spring 1981 that have favoured the establishment of infections; (iii) lack of specific treatments against the disease; (iv) increased use of the new systemic fungicides for controlling downy mildew that are ineffective against black rot. — The strategy for controlling the disease can be based on both preventive measures (e. g. removal of inoculum by careful pruning of infected vines) and chemical treatments. The most effective chemicals against black rot are the classical ones including Cu salts and a variety of organic fungicides such as zineb, captafol, folpet, mancozeb. These can also be used in mixed formulations with systemic fungicides and must be applied in the early stages of vegetation well in advance of the beginning of treatments against downy mildew. *G. P. Martelli* (Bari)

BRÜCKBAUER, H.: **Mögliche Beziehungen zwischen Virus und Symptomausprägung bei der Rebe** · Possible correlations between virus and symptom expression of grapevines
Wein-Wiss. **37**, 88—118 (1982)
Abt. Virol., LIFA f. Landwirtsch. Wein- Gartenbau, Neustadt/Weinstr.

Author describes the symptoms produced on several scion and rootstock cvs. of grapevine by 5 viruses of the Nepovirus group, which occur separately or in mixed infections in grapevines showing symptoms of "Reisigkrankheit" in West Germany: fanleaf virus, arabis mosaic virus, strawberry latent ringspot virus, tomato black ring virus and raspberry ringspot virus. Although the symptomatology is complicated by varietal differences in the reaction of grapevine to each of these viruses and by convergence of the symptoms caused by different viruses on the same cv., there is more specificity of symptom expression in relation to the causative viruses than it has been admitted so far. This is true not only for leaf symptoms, but also for shoot deformations (double nodes, short internodes, fasciations) and for trabeculae. The possible occurrence of different strains of some of the viruses studied is discussed. The cv. Siegfriedrebe is very sensitive to most of the viruses investigated and can be considered as a good indicator. It is suggested that the term "Reisigkrankheit" is no longer adequate and that the different syndroms of this complex should be designated according to the causative viruses. *R. Bovey* (Nyon)

DANAILOV, B., ABRASHEVA, P.: **Infektiöse und nichtinfektiöse Chlorose und ihre Bekämpfung** · Infectious and non-infectious chlorosis and its control (bulg.)
Lozar. Vinar. (Sofia) **30** (4), 18—23 (1981)
Inst. Lozar. Vinar., Pleven, Bulgarien

Es werden die Unterschiede der Symptome bei infektiöser (IC) und nicht-infektiöser Chlorose (NIC) beschrieben. Während die NIC an den Blättern der Triebspitzen erscheint, verbreitet sich die IC von den basalen Teilen der Rebe her. Verursacht wird die NIC durch hohen Kalkgehalt des Bodens und Bodennässe (Lösung von Bikarbonationen und Umwandlung des Fe von der Ferro- in die Ferriform). Verwendung resistenter Unterlagen, Behandlung mit Fe-Präparaten, Ertragsregulierung, zurückhaltende Bodenbearbeitung u. a. werden als Mittel gegen NIC genannt. — IC ist eine Viruserkrankung; ihre Symptome sind höchstens bis Anfang August erkennbar. Kalte und regnerische Witterung inhibiert die Symptome. Die Krankheit verringert Wachstum, Holzreife und Traubenertrag. Die Bekämpfung erfolgt durch Selektion. *D. Pospíšilová* (Bratislava)

DIETER, A.: **Verringerung der Wirkstoffmengen im weinbaulichen Pflanzenschutz durch Beachtung der Laubentwicklung bei Reben** · Decrease of the amount of pesticides in vineyards with special regard to the foliage development of grapevines
Bayer. Landwirtsch. Jahrb. **58** (Sonderh. 2), 28—32 (1981)
Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

In the years 1970—1973, trials were carried out in Franconia in order to determine the amounts of pesticides necessary for application during the different stages of foliage development of the grapevines. The leaf areas of 200 shoots of the vars. Müller-Thurgau and Sylvaner were planimetrically measured and these values were calculated for 1 ha for the different developmental stages. — The fungicide used was copperoxychloride, sprayed in 5 concentrations. The coating quality was determined by the method of KÖNIGER and OBERMAYER with Rubeanhydrogen and classified by a 9-degree scale. Optimal coating was recorded at 3.5. — It could be shown that there was a clear correlation between and amount of fungicides needed for a good coating and the leaf development.
D. H. Lorenz (Neustadt)

GEOFFRION, R.: **L'esca de la vigne** · Black measles of grapevine
Phytoma (Paris) (335), 25—26 (1982)
Serv. Protect. Vég., Angers, Frankreich

This popular style article describes the symptoms, factors which predispose plants to the disease and methods for its control. In France, unlike other European countries, the use of sodium arsenite is still permitted. It is sprayed (1250 g arsenic/hl) on the vines after pruning and not later than 3 weeks before bud burst. Usually, the treatment is continued over a period of 2—3 years until the symptoms have vanished and is renewed only if they appear again. *M. Bisiach* (Mailand)

HOPP, H.: **Der Rote Brenner, seine Schadbilder und seine Bekämpfung** · Rotbrenner, its symptoms and control
Bad. Winzer (3), 106—110 (1982)
Staatl. Weinbauinst., Freiburg/Br.

In recent years, rotbrenner has become a serious disease, partly because it is often misdiagnosed and partly because modern vineyard cultivation methods do not eradicate the overwintering stages of the causal fungus. Following infection of the leaves very early in the season, the fungus mycelium blocks the vascular system and impedes the flow of water and nutrients. This leads to a considerable reduction in yield and quality and the disease is exacerbated in humus-deficient, shallow, dry soils. In red grape cultivars, the characteristic leaf lesions are wedge-shaped, brownish and necrotic, with a red margin, sharply demarcated by the veins. The lesion margin is yellow-green in white grape cultivars. The lesions tend to be near the margins of the leaf but with multiple infections, lesions may be coalesced all over the lamina without the coloured margin. — Control measures include starting prophylactic sprays at the 2-leaf stage and continuing regularly to protect new growth (using fungicides of the *Plasmopara* and *Phomopsis* programmes); applying 4—5 kg/a calcium cyanamide to the leaf debris in March; burying the leaf debris; eradicating old neglected vineyards and wild vines; and improving soil fertility, especially with humus. *W. R. Jarvis* (Harrow)

HOPP, H., JÖRGER, V.: **Eine im deutschen Weinbau neue Bakteriose** · A new bacteriosis in German vineyards (m. engl. Zus.)
Wein-Wiss. **37**, 119—126 (1982)
Staatl. Weinbauinst., Freiburg/Br.

During spring in 1981 and up to now, unknown symptoms were observed on grapevines in the Remstal (Württemberg). Mainly the var. Müller-Thurgau and, there, especially the leaves were attacked. Necrotic spots of different size built up and the undersurface of the leaf was often covered with a mucilaginous mass. Heavy infection resulted in leaf decay. During summer, late infections only occurred sporadically. As the causing agent of these symptoms, a bacterium of the *Pseudomonas syringae* type was identified. First trials were carried out in the laboratory to examine the effectiveness of different fungicides which are used in viticulture. *D. H. Lorenz* (Neustadt)

MALENIN, I.: ***Erwinia vitivora* auf Rebenpflanzmaterial** · Bacterial blight on planting material (bulg.)
Lozar. Vinar. (Sofia) **30** (4), 24—26 (1981)
Inst. Lozar. Vinar., Pleven, Bulgarien

Unterlagen und wurzelechte Reben wurden in den Jahrgängen von 1968 bis 1979 teils im Lager in Sand (5—10 % Feuchtigkeit bei 70—85 % Luftfeuchtigkeit) zu ⅓ vertikal eingegraben, teils im Freiland (0,4 m tiefer Graben) mit Sand angehäufelt und so überwintert. Der Befall mit *Erwinia vitivora* war unter den kontrollierten Bedingungen im Lager schwach und auch im Freiland ökonomisch unbedeutend. Dies gute Ergebnis wird auf die Hocherziehung zurückgeführt, bei der die Reben im Winter nicht angehäufelt werden. *D. Pospíšilová* (Bratislava)

MARAIS, P. G., TROMP, A.: **Metaxanine, a systemic fungicide against *Plasmopara viticola* on wine grapes: Disease control, residues and effect on fermentation and wine quality** · Metaxanin, ein systemisches Fungizid gegen *Plasmopara viticola* bei Keltertrauben: Bekämpfung, Rückstände und Einfluß auf Gärung und Weinqualität
S. Afr. J. Enol. Viticult. (Stellenbosch) **2,** 67—70 (1981)
Oenol. Viticult. Res. Inst., Stellenbosch, RSA

In some South African areas, downy mildew of grapes can become a problem shortly before harvest. Residues of fungicides used at this stage of grape development may have an influence on fermentation and affect wine quality. Therefore, the new systemic fungicide metaxanine (methyl D, L-N-(2,6-dimethyl-phenyl)-N-(2-methoxyacetyl)alaninate) was not only tested for its effectiveness against *Plasmopara viticola* but also for its possibly detrimental effect on fermentation and wine quality. In different disease control trials, it was found that the extent of leaf infections decreased with increasing metaxanine concentration, that metaxanine gave significantly better results than mancozeb and showed a good curative activity. Residues in grapes and musts were very low and were mostly removed during the vinification processes. Fermentation was not affected and wines made from treated and from non-treated grapes of 3 varieties showed no difference in quality ratings. *E. Bosshard-Heer* (Wädenswil)

MARTIN, R.: **Mottenflugkontrolle mit Pheromon-Fallen** · Monitoring moth flight with pheromone traps
Rebe u. Wein **35,** 170 (1982)

The use of lure glasses for monitoring the flight of leafroller moths — an innovation in its day — has largely been superseded by modern pheromone traps. Disadvantages of the early lures are described and the pros and cons of the pheromone traps are pointed out and discussed. Several aspects of the monitoring technique and interpretation of data require clarification. Further testing of the reliability of pheromone traps is envisaged. Farmers interested in participating in this programme are invited to contact their local viticultural adviser for details.
P. C. Smith (Stellenbosch)

MONCOMBLE, D., ROUAS, G.: **Essais de lutte contre le rougeot parasitaire en 1981** · Experiments to control *Pseudopeziza tracheiphila* (rougeot, Rotbrenner) in 1981
Vigneron Champ. (Épernay) **103,** 154—161 (1982)

The disease has always been present in certain vineyards, but it has recently become more important in France and in Switzerland. 1981, 5 experiments have been conducted which should help to understand the mechanism of infection giving more information about the kind of treatment necessary. It was found that the control of *P. tracheiphila* needs preventive treatments, which have to be applied at the beginning of the infection. Asci are ripe in April or May, and infections usually take place after a period of rain which is necessary for the distribution and the germination of the ascospores. Therefore, it is recommended to treat the plants at the stages of 6, 9 and 12 unfolded leaves. The treatment trials with many different fungicides showed that mancozeb gave the best control of the disease. From the results it could be concluded, that the mixture with compounds of the benzimidazole group ameliorated the effect of the downy mildew fungicides against *P. tracheiphila*.
E. Bosshard-Heer (Wädenswil)

NIPOTI, P., ERCOLE, N. D': ***Verticillium* wilt of grapevine. II. The behaviour of different rootstocks.** · *Verticillium* bei der Rebe. II. Das Verhalten verschiedener Unterlagen (ital. m. engl. Zus.)
Vignevini (Bologna) **9** (3), 47—50 (1982)
Ist. Patol. Veg., Univ. Bologna, Italien

A brief description of the symptoms induced in grapevine by *Verticillium dahliae* is given together with the results of experimental trials for assessing the resistance of American rootstocks to the fungus. The behaviour of 11 different rootstock hybrids was tested using a mixed inoculum consisting of 16 different grape isolates of *V. dahliae*. Rooted cuttings were inoculated with a mycelial suspension and were planted either in steam-sterilized soil in plastic containers or directly in the field. Readings were made in 3 successive years. The level of resistance was estimated on the basis of the intensity and extent of the brown discolourations shown by woody tissues. — Regardless of whether the vines were grown in pots or in the field, the results were the same. Kober 5 BB, 420 A and SO 4, which are the most widespread rootstocks in Emilia-Romagna where the trials were carried out, were equally susceptible to the infection. Kober 5 BB, however, was colonized to a greater extent by the fungus as compared with 420 A and SO 4, thus confirming field observations which indicate that vines grafted onto Kober 5 BB are more severely affected by *Verticillium* wilt. A fair degree of resistance was shown by 57 R. *G. P. Martelli* (Bari)

NOVÁK, I., RENCZÉS, V., ŠIMKO, K.: **Neuere Erkenntnisse über verschiedene Typen von Pheromon-Traubenwicklerfallen in Weingärten** · New knowledge of different types of pheromon grape berry moth traps in vineyards (slowak.)
Vinohrad (Bratislava) **19,** 273-275 (1981)
Výskumná Stan. Vinohradn. Vinár., Modra, CSSR

In den Jahren 1980—1981 wurden verschiedene Typen von Pheromonfallen sowie ihre Anbringungshöhen (0,4 und 1,2 m) in den Weinbergen geprüft. Für den Bekreuzten Traubenwickler wurden 3 Pheromonfallen — Stuttgart, Delta und Montedison —, für den Einbindigen Traubenwickler 4 Fallen — Stuttgart, Montedison, Etocap und Hoechst — angebracht. Unter schlechten Flugbedingungen wurden bei niedriger Höhe mehr Schmetterlinge gefangen, besonders bei den Fallen Stuttgart, Delta, Etocap, Hoechst, die den Fang nur in einer Richtung — entlang der Stockreihen — erlauben. Diese Fallen müssen in 2 Höhen angebracht werden. Montedison, die das Abfangen in mehreren Richtungen ermöglicht, ergab hohe Fangzahlen in beiden Höhen bei beiden Traubenwicklern. Ihre Handhabung ist einfach. *D. Pospíšilová* (Bratislava)

PRATT, CH., POOL, R. M.: **Anatomy of recovery of canes of *Vitis vinifera* L. from simulated freezing injury** · Simulierte Frostschäden und die Anatomie der Heilung bei Reben von *Vitis vinifera* L.
Amer. J. Enol. Viticult **32,** 223—227 (1981)
Dept. Pomol. Viticult., N. Y. State Agricult. Exp. Sta., Geneva, N. Y., USA

Artificial freezing of 2-year-old *Vitis vinifera* canes was conducted just prior to bud swell applying N_2 liquid below the 4th bud from the top. On the one hand, copper tubing, inserted into N_2, was bound around the cane like girdling, on the other hand, canes were spot-frozen, Girdling was associated with 5 and 7 % survival, spot freezing resulted in 44—62 % survival. If, after the frost, there was a survival of the cambium of the 1st year because of its deeper site in the cane, it produced callus in year 2. The callus differentiated a new cambium which produced new phloem and xylem. The activity of the cambium was responsible for the development of the new shoots but not for the bud break. — A mitotic activity could be observed in persistent shoots which survived the bud swelling. The connection of the vessels between cane and shoots of this shoot type was well developed. Short-lived shoots were characterized by small necrotic cushions and 5 to 9 leaves because they were developed by dormant buds. *S. Baranski* (Geilweilerhof)

SIEGFRIED, W., SCHÜEPP, H.: **Erfolg und Probleme bei der Bekämpfung des Rotbrenners der Rebe 1981** · Results and problems in the control of rotbrenner in grapevine 1981
Schweiz. Z. Obst- Weinbau **118,** 320—324 (1982)
Eidgenöss. FA f. Obst- Wein- Gartenbau, Wädenswil, Schweiz

The incidence and control of rotbrenner was studied in 3 Swiss vineyards in 1981. At Walenstadt, the season was characterized by very early emergence followed by cool weather, and 39 % of the

leaves were infected. At Berneck and Maienfeld there was frost damage followed by regrowth, and 18 % and 11 % of leaves were infected, respectively. Fungicide applications began at the 3-leaf stage on May 7, followed by further sprays on May 15, May 25 (delayed by rain at Berneck and Maienfeld to May 30) and June 10. Excellent control (97—99 %) was achieved at Walenstadt with dithiocarbamate fungicides, but probably because of the delay in the programme at Berneck and Maienfeld, control was poor, 68 % and 66 %, respectively. Adequate coverage of new growth at timely intervals is considered essential for good rotbrenner control. Contrary to other reports, rotbrenner did not appear to affect yield or quality and this aspect requires further work. *W. R. Jarvis* (Harrow)

SCHRUFT, G.: **Der Springwurm-Wickler *Sparganothis pilleriana* — Lebensweise und Bedeutung im Weinbau** · The vine pyralid caterpillar *Sparganothis pilleriana* — its biology and importance in viticulture
Bad. Winzer (3), 103—106 (1982)
Staatl. Weinbauinst., Freiburg/Br.

The vine pyralid caterpillar or Pyrale *(Sparganothis pilleriana)* has recently gained importance in German viticulture, especially in localized patches. The appearance and biology of various stages in the life cycle of the pest are described and symptoms of the damage it causes are discussed. Control is only considered essential in cases of very severe infestations. Chemical control may be applied by spraying during winter, at budburst or in spring. A list is given of compounds registered for control of the pest at each spray. *P. C. Smith* (Stellenbosch)

STIRLING, G. R., WHITE, A. M.: **Distribution of a parasite of root-knot nematodes in South Australian vineyards** · Die Verbreitung eines Parasiten von Wurzelgallenälchen in südaustralischen Weinbergen
Plant Disease (St. Paul) **66**, 52—53 (1982)
Dept. Agricult., Res. Cent., Loxton, Südaustralien

Bacillus penetrans is a widespread and efficient parasite of root-knot nematodes *(Meloidogyne* spp.). It was frequently found in South Australian vineyards older than 10 years, but was rare in vineyards less than 10 years old. In old vineyards the nematode populations tended to be lower than in young vineyards. The percentages of parasitized nematodes suggested that this was mainly due to the density of *B. penetrans*. Thus *B. penetrans* may prove to be a useful biological control agent in Australian viticulture. *B. Weischer* (Münster)

STOEV, K., KARADIMCHEVA, B.: **Druckfestigkeit von Traubenbeeren unter Berücksichtigung ihrer *Botrytis*-Resistenz** · Résistance en pression des grains de raisin à l'égard de leur sensibilité envers la pourriture grise (bulg. m. russ., franz. Zus.)
Gradinar. Lozar. Nauka (Sofia) **18** (5), 55—61 (1981)
Inst. Lozar. Vinar., Pleven, Bulgarien

An 9 Rebsorten auf 2 Standorten und in 3 Jahren wurde der zum Zerquetschen der Beere nötige Druck gemessen und festgestellt, daß er von Sorte, Jahrgang und Standort abhängt. Bei Trockenheit ist die Beere widerstandsfähiger. Mit zunehmender Reife vermindert sich die Druckfestigkeit; zwischen ihr und dem Zuckergehalt wurde keine Korrelation gefunden. Jedoch besteht ein positiver Zusammenhang zwischen der *Botrytis*-Resistenz der Beere und ihrer Druckfestigkeit.
D. Pospíšilová (Bratislava)

VETTEN, H. J.: **Indexing of nepoviruses on *Chenopodium quinoa* after elimination of virus inhibitors in grape leaf extracts** · Nachweis von Nepo-Viren auf *Chenopodium quinoa* nach Entfernung von Virusinhibitoren aus Blattextrakten der Rebe (m. dt. Zus.)
Z. Pflanzenkrankh. Pflanzensch. **88**, 99—110 (1981)
Abt. Virol., Inst. Pflanzenkrankh., Rhein. Friedrich-Wilhelm-Univ., Bonn

Separation of viruses and inhibitors by column chromatography (Sephadex G-100, CPG-10) has essentially improved evidence of certain nepoviruses from grapevines on *Ch. quinoa*, compared to the usual method with nicotine. With Sephadex G-100, transmission of grape viruses to herbaceous plants was also much better from older leaves in late sommer and autumn than with nicotine. Preparation of the inocula with polyvinylpyrrolidone resp. liquid N_2 increased the virus activity in an important manner; additional research is necessary up to a practical use. *M. Rüdel* (Neustadt)

J. TECHNIK

ANONYM: **Sur les dégâts causés par les machines à vendanger** · Vine damage caused by mechanical harvesters
Progr. Agric. Vitic. (Montpellier) **99** (2), 32—35 (1982)
Chaire Viticult., École Natl. Sup. Agron., Montpellier, Frankreich

Mechanical harvesting is suspected to reduce yield in the long term due to breakages of permanent arms and damage to buds. In the south of France, Carignan bush-vines harvested in 1980 with a Soulé harvester had 4.2 buds that failed to burst, compared with 1.1 buds on hand-harvested vines. Trellised vines of Cinsaut, Alicante Bouschet and Grenache had between 0.7 and 1.7 blind buds after mechanical harvest with a Chisholm-Ryder machine, or after hand-harvest; only Grenache showed significant differences due to harvesting method. Bud damage is illustrated and further work is proposed. *P. May* (Adelaide)

ÉRCZHEGYI, L., MERCZ, A.: **Bewertung kontinuierlicher Schneckenpressen** · Evaluation of continuous screw presses (ungar.)
Borgazdaság (Budapest) **30**, 35—37 (1982)

Aufgrund langjähriger Untersuchungen wird die Anwendung moderner kontinuierlicher Schnekkenpressen dann als zweckmäßig empfohlen, wenn diese günstige technische und ökonomische Parameter sowie eine hohe Leistung aufweisen und gekoppelt mit leistungsfähigen Entsaftungsanlagen arbeiten. Ein beträchtlicher Teil der Mostgesamtmenge mit entsprechend guten Fraktionen (Vorlauf, erster Preßmost), die eine günstige chemische Zusammensetzung aufweisen, wird gewonnen. Qualitativ ist der von kontinuierlich arbeitenden Schneckenpressen (Typ Coq-1000, Péra [Frankreich] und VPO 20 [UdSSR]) gewonnene Most mit solchen von horizontalen hydraulischen Pressen gleichgestellt. Es sei jedoch bemerkt, daß die Qualität des Preßmostes von der 2. Fraktion an stark absinkt und daher gesondert verarbeitet werden sollte. Wegen Mangels an Arbeitskräften und aus Gründen der hohen Verarbeitungskosten sind diese Preßanlagen in den wichtigen Weinbaugebieten mit konzentrierter Weinproduktion in ungarischen Weingroßbetrieben z. Z. unersetzlich. *E. Minárik* (Bratislava)

FISCH, W., LIPPS, H. P.: **Brühesparende Applikationstechnik im Weinbau** · Spray-solution-saving application technique in viticulture
Dt. Weinbau **37**, 428—431 (1982)
LLVA f. Wein- Gartenbau u. Landwirtsch., Bad Kreuznach

Die Möglichkeiten, mit herkömmlichen Sprühgeräten Brühe- und Wirkstoffmenge einzusparen, war das Ziel von 2jährigen Versuchen, über deren Ergebnisse berichtet wird. In den Versuchsvarianten bei 4 Rebsorten wurden 1000, 150 oder 80 l/ha ausgebracht und die Wirksubstanzmengen von 100 auf 75 bzw. 50 % verringert. In beiden Jahren erreichte die Variante mit 150 l/ha Brühemenge und 75 % Wirkstoffmenge die gleiche biologische Wirksamkeit wie die Behandlung mit 1000 l/ 100 %. *W. Rühling* (Geisenheim)

GLEMANN, C.: **Membranfiltration — Möglichkeiten und Grenzen im Weinbaubetrieb** · Membrane filtration — potential and limitations in wine making
Dt. Weinbau **37**, 464—475 (1982)
LLVA f. Landwirtsch. Wein- Gartenbau, Oppenheim

Membrane filtration has gained acceptance by the German wine industry. When used with precautions and expertise this method is superior to the conventional types of pad filters. It offers additional security against microbiological contaminations of bottled wines. 2 commercially available filter systems, one from Pall and another from Seitz, are discussed in detail, describing differences of membranes and types as well as their filtration action. Prerequisites for a successful filtration are properly fined and prefiltered wines. Membranes can be checked for damage, they can be cleaned, stored after use and reused. Several costings are presented to demonstrate economical advantages. *R. Eschenbruch* (Hamilton)

KHRISTOV, G.: **Untersuchungen zur Wirksamkeit der Bekämpfung von *Plasmopara* durch Flugzeuge** · Recherches sur l'efficacité biologique de la pulvérisation par avion dans la lutte contre le Mildiou (bulg. m. russ., franz. Zus.)
Gradinar. Lozar. Nauka (Sofia) **18** (12), 100—108 (1981)

Im Süden, Osten und Norden Bulgariens wurden während 7—8 Jahren Versuche zur Bekämpfung der *Plasmopara viticola* vom Flugzeug aus organisiert. Das Sprühgerät des Flugzeugtyps AN 2 besaß Membranventile mit Öffnungen von 3 mm und ein Gebläse No. 5. 2maliges Sprühen mit je 50 l Cuprosan oder Cuprozin/ha in Kombination mit den Haftmitteln Fixan oder Elo schufen bei einer Sprühbreite von 25 m einen genügenden Rebenschutz; unter kritischen Befallsbedingungen konnte der Befall der Beeren auf 5 %, der Blätter auf 15 % begrenzt werden. In normalen Jahrgängen stieg die Wirksamkeit bis auf 98—99 %. Das Sprühen vom Flugzeug aus ergab gegenüber der Traktorarbeit eine 2,22 × größere Arbeitsproduktivität, was einem Geldbetrag von 40—260 Leva/ha entspricht. *D. Pospíšilová* (Bratislava)

LÉKÓ, L.: **Ein Modell der Filtrierung und seine Anwendung in der Praxis** · A laboratory model for filtration and its use in practice (ungar.)
Borgazdaság (Budapest) **30**, 31—34 (1982)

Wenn die Zeit, die zur Filtration einer bestimmten Weinmenge erforderlich ist, gemessen wird, werden zwar vergleichende Werte in den einzelnen Fällen erhalten, zum eigentlichen Filtriermechanismus gibt es jedoch keine konkrete Aussage. Verf. versuchte ein Laborfiltriermodell aufzustellen, dessen gemessene Eigenschaften in der Betriebspraxis verwendet werden könnten und das auch zu Bewertungsaufgaben, z. B. bei Filterschichten, geeignet wäre. Dieses Labormodell liefert wertvolle Angaben für den Filtrierprozeß, für die Optimalisierung des Klärungsvorganges und zur Bestimmung der Betriebsfiltrierumstände. Ergebnisse bisheriger Untersuchungen werden ausführlich dargelegt. *E. Minárik* (Bratislava)

MAUL, D.: **Arbeitsaufwand und Kosten verschiedener Keltersysteme** · Expenditure of work and costs of different systems of wine presses
Weinwirtsch. (Neustadt/Weinstr.) **118**, 311—315 (1982)
LLFA f. Landwirtsch. Wein- Gartenbau, Neustadt/Weinstr.

There are many different producers of wine presses and each of them is producing different systems of wine presses so that it is worthwile to compare the types, the sizes, the investments and the producing costs. Thanks to this variety it is easy for all wineries to find the best press.
H. Eschnauer (Ingelheim)

MAURER, R.: **Über neuentwickelte Rotweinmaische-Gärbehälter** · Concerning new developments of red wine fermenters
Rebe u. Wein **35**, 206—213 (1982)
Staatl. LVA f. Wein- Obstbau, Weinsberg

Verf. vergleicht 2 Maischegärgeräte, bestehend aus einem stehenden und einem liegenden Tank mit Rühreinrichtungen (Vinotherm und Vino-Top-Fermenter). Nach einleitender Darstellung der Vorteile solcher Geräte zur Maischevergärung werden die beiden Geräte in Funktion und Ergebnis gegenübergestellt. Grundsätzliche Schwächen zeigen die Geräte bezüglich Energiezu- und -abfuhr, Unterschiede in Details wie Entleerung. Die Neuentwicklungen werden als ergänzende Technologien für Klein- und Mittelbetriebe empfohlen. *L. Jakob* (Neustadt)

MORRIS, J. R., CAWTHON, D. L.: **Yield and quality response of Concord grapes *(Vitis labrusca* L.*)* to mechanized vine pruning** · Ertrag und Qualität der Sorte Concord *(Vitis labrusca* L.*)* in Abhängigkeit vom mechanischen Rebschnitt
Amer. J. Enol. Viticult. **32**, 280—282 (1981)
Dept. Hort. Food Sci., Univ. Arkansas, Fayetteville, Ark., USA

Concord vines in Arkansas were compared for 6 years while pruned to mean node numbers of 54 by hand relative to vine size (a), 60 (b) or 90 (c) by machine with hand follow-up and 110 by machine without follow-up (d). They were trained as Geneva Double Curtain (GDC) or Single Wire Cordons. In the 6th season, treatments (c) and (d) showed symptoms attributed to over-cropping: less vegeta-

tive growth, less crops (on GDC only in (c)), more green berries, juice of less % soluble solids and colour, lower pH, increased acidity and inferior sensory quality. [See also J. Amer. Soc. Hort. Sci. **105**, 310, 1980; Ref. Vitis **19**, 275, 1980.] *P. May* (Adelaide)

SCHMITT, A.: **Kork — Problematik eines jahrhundertealten Flaschenverschlusses** · Cork — Problematic nature of a centuries-old stopper of wine bottles
Bayer. Landwirtsch. Jahrb. **58** (Sonderh. 2), 77—82 (1981)
Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

Cork is used as the ideal stopper for wine bottles since centuries. But even the cork has certain disadvantages, especially due to the taste and flavor problems sometimes given to the wine. The results of recent research work show the origin of these disadvantages and also possibilities of avoiding them. Up to now, there is no substitution of cork available, so that the clearing-up of the cork problem is of most interest to the practice. *H. Eschnauer* (Ingelheim)

SCHWARZBACH, E.: **Ozon — das umweltfreundlichste Sterilisationsmittel** · Ozone — the ecologically most beneficial sterilizer
Weinwirtsch. (Neustadt/Weinstr.) **118**, 218 (1982)

According to the recent research work, there is no doubt that O_3 is the most acceptable sterilizer for wine bottles and beneficial to environment. Also for other reasons it is much better than SO_2. The method of O_3 sterilization and its advantage is described. *H. Eschnauer* (Ingelheim)

UHL, W.: **Technischer Stand handelsüblicher, schleppergetriebener Weinbausprühgeräte** · Technological stage of tractor-driven, viticultural spraying machines usual in trade
Dt. Weinbau **37**, 423—427 (1982)
Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

Die Angebotsvielfalt bei den Sprühgeräten für den Direktzug erschwert dem Kaufinteressenten die Wahl. Verf. gibt mit einer Bewertung der aktuellen Ausführungen der wichtigsten Baugruppen eines Sprühgeräts eine wertvolle Entscheidungshilfe. Neben Behälter, Pumpen, Düsen und Gebläse finden die Bedienungsarmaturen eine besonders ausführliche Darstellung mit der Erläuterung von 2 Ausführungen für die Gerätefernbedienung. *W. Rühling* (Geisenheim)

URBÁN, A., GYÖRGY, T.: **Weintechnologische Untersuchung von neuen Filterperliten** · Wine technological investigations on filter perlites (ungar.)
Borgazdaság (Budapest) **30**, 17—28 (1928)
Kertész. Egyet. Borászati Tansz., Budapest, Ungarn

Möglichkeiten der Verwendung von Perlit als Filterhilfsmaterial in der Weinbereitung und als Ersatz für Kieselgur wurden untersucht. Vergleichsweise wurden Weine mit 2 Kieselgur- (Celite 535, Hyflo Super Cell) und 3 ungarischen Perlit-Präparaten (Perfil K 90, K 195, K 250) filtriert. Parallel wurden auch Perlit- und Kieselgurmischungen zur Filtration herangezogen. In allen Fällen verlief die mit der Mischung Kieselgur-Perlit durchgeführte Filtration am schnellsten. Perlit K 195 hatte die beste Durchlässigkeit. Es wird betont, daß von den untersuchten Metallionen nur Calcium in unbedenklichen Mengen ausgeschwemmt wird. Als am besten für den Ersatz des Kieselgur geeignet werden Perlit K 195 und K 250 genannt. *E. Minárik* (Bratislava)

VAGNY, P., CHALER, G., VERNET, C.: **Machines à vendanger: Progression du parc français** · Mechanical grape harvesters: progress in France
Vignes et Vins (Paris) (308), 9—14 (1982)

The rapid increase in the use of mechanical grape harvesters in France, since they were first tried in 1971, is described in detail. The 1981 harvest saw 2412 machines in use in 34 departments; they harvested 13—14 % of the total vineyard area, predominantly in the south-west and the south. Recent changes are the increase in the proportion (of up to 30 %) of tractor-drawn or -mounted machines and in the use of machines in the western part of France. 17 manufacturers offer 46 models of grape harvesters and these numbers are likely to increase. *P. May* (Adelaide)

WACHTLER, I.: **Verteilung der Gärungswärme in Gärbehältern im Freiland** · Distribution of fermentation heath in field tanks (ungar.)
Borgazdaság (Budapest) **30**, 28—30 (1982)

Durch Infrarotaufnahmen mittels des „AGA-Thermovisions"-Systems untersuchte Verf. die räumliche Verteilung der Gärungswärme an der Innenwand von Großraumgärbehältern während der Gärung. Die Isothermen verschiedener Wärmeflächen sind gut voneinander zu unterscheiden und in verschiedenen Farben sichtbar. Auch aus den (schwarz-weißen) graphischen Darstellungen geht hervor, daß dieses Verfahren ein klares Bild über die Wärmeverhältnisse wiedergibt. Außerdem zeigte sich, daß sich in Fermentatoren Wärme- und Gasentwicklung gut verteilen. — Das Verfahren kann auch für andere Wärmemessungen herangezogen werden. *E. Minárik* (Bratislava)

K. BETRIEBSWIRTSCHAFT

BIRON, D., FABRE, M.-N.: **Analyse économique et financière d'un groupe d'exploitations viticoles des Pyrénées-Orientales** · Wirtschaftlichkeits- und Finanzanalyse einer Gruppe von Weinbauunternehmen der Pyrénées-Orientales
Bull. Tech. Pyrénées/Orient. (Perpignan) **102**, 5—10 (1982)

Verff. behandeln die Spanne der Produktionskosten verschiedener Betriebsgrößen im Departement Ost-Pyrenäen für das Jahr 1980. Die Produktionskosten betragen im Mittel 13500 frs/ha. Davon sind 4500 frs/ha für die Weinbereitung. Die Schädlingsbekämpfungsmittel haben sich um 25 % und die Düngemittel um 15 % erhöht. Im Mittel lag das landwirtschaftliche Einkommen bei 4100 frs/ha. Nach Abzug der kalkulierten Kosten von 5551—7274 frs/ha für Familieneinkommen, Kapital- und Kreditkosten, Neuinvestitionen und anderen Kosten wird ein negatives Betriebseinkommen von −1337 bis −2348 frs/ha erzielt. Die Eigenkapitalverzinsung liegt bei 6 %. Investiertes Kapital fließt nach 3—4 Jahren zurück. Bei Weinvorräten dauert der Umschlag 2,5 Jahre. Nur 12 % der Betriebe sind liquide, und 6 % können kurzfristig entstandene Kosten begleichen. Während die Arbeitskosten im Mittel 30 % der Gesamtkosten ausmachen, liegen sie in den größten Großbetrieben durch ungenügende Flexibilität der Arbeitskräfteanstellung über 50 %. *F. Schnekenburger* (Freiburg)

JUNG, I.: **Profitability of grape production in sandy areas of Slovakia** · Rentabilität der Traubenproduktion im Sandgebiet der Südslowakei (slowak. m. engl., russ. Zus.)
Pol'nohospodarstvo (Bratislava) **27**, 626—634 (1981)
Komplexný Výskumný Ústav Vinohradn. Vinár., Bratislava, CSSR

Economic indices of the viticultural areas with sand soils in the south of Slovakia and those in the Czecho-Slovakia are compared in detail. The data presented a high variability of all economic indices of the sand soils. This variability is mainly determined by climatic factors. The most important influence is due to the effect of spring frosts. As a direct result, the choice of convenient sites for establishing vineyards on sand soils and changes in the vine-growing system are proposed.
J. Blaha (Brno)

KALINKE, H.: **Établissement des frais de culture de la vigne. Méthodologie internationale uniformisée** · Feststellung der Kosten im Weinbau. International vereinheitlichte Methodologie
Bull. OIV **55**, 322—339 (1982)
Inst. Betriebswirtsch. Marktforsch., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

Verf. bemüht sich um eine internationale Vereinheitlichung zur Berechnung der Kosten im Weinbau. Hierdurch sollen nationale und regionale Berichte vergleichbarer und informativer gestaltet sowie zur Rationalisierung und Planung verwendet werden können. Die Probleme bei der Durchführung der Vereinheitlichung wie Begriffe und deren Inhalte, Prinzipien der Schätzung und Kostenzuteilungsprobleme werden abgehandelt. Die Methode der Betriebsanalyse Gießen-Hohenheim wurde während der Jahre 1960—79 in Geisenheim angewendet. Es konnten damit Weinbau-

betriebe aller deutschen Weinbaugebiete analysiert werden. Über Arbeitstagebücher wurde der Arbeitsstundenaufwand im Weinbau erfaßt. Die Ergebnisse der Auswertung sind tabellarisch dargestellt, das Vorgehen bei der Teil- oder Deckungsbeitragsrechnung ist beschrieben.

F. Schnekenburger (Freiburg)

VAŠKOVSKÝ, P.: **Analysis of productional and economic factors of viticulture in Slovakia** · Analyse der weinbaulichen und ökonomischen Faktoren des Weinbaus in der Slowakei (slowak. m. engl. Zus.)

Pol'nohospodárstvo (Bratislava) **27**, 1051—1057 (1981)

Vysoká skola polnohos., Nitra, CSSR

Viticulture is of special importance in agricultural production and economy. The processes of intensification in viticulture must be performed primarily in disclosing reserves during the rational utilisation of all possibilities to improve the economic parameters of the production. Therefore, the necessary examinations were carried out in 4-year cycles in the quality degree regions I. and III. From the results obtained it is evident that there are sufficient reserves in both regions, which can be effectively used in the processes of intensification of the grape production. The resulting profitability evaluations differ partially, according to the climatic conditions. On an average, the total prime costs amounted to 23322 crowns/ha. *J. Blaha* (Brno)

L. ÖNOLOGIE

BACH, H.-P., HOFFMANN, P., NOBIS, P.: **Untersuchungen zur Gasüberlagerung in Holz-Anbruchgebinden** · Investigations on gas overlapping in broached wooden casks

Weinwirtsch. (Neustadt/Weinstr.) **118**, 412—417 (1982)

LLVA f. Wein- Gartenbau Landwirtsch., Trier

Mit je einem Riesling-Grundwein der Jahrgänge 1978 und 1979 des Anbaugebietes Mosel-Saar-Ruwer wurde ein Versuch zur Überlagerung von Holz-Anbruchgebinden mit Gas durchgeführt. Die Dichtigkeit der Holzfässer reicht bei einem entsprechenden Spundverschluß in der Regel aus, um hohl liegenden Wein mit Gas zu überlagern. Bei einem O_2-Gehalt unter 2 % der Kopfraumatmosphäre ist kein Schimmelpilzwuchs an der Faßinnenseite zu erwarten. Eine weitgehende Verhinderung des Kahmhefewachstums ist durch eine O_2-Minderung des Kopfraumes auf < 0,5 % gewährleistet. Hierzu wird etwa die 4- bis 5fache Menge an N_2-Gas benötigt. Der O_2-Gehalt des Weines selbst hat für das Wachstum der Kahmhefe keine so große Bedeutung. Bei einem O_2-Anteil von 0,4 % in der Kopfraumatmosphäre konnte kein signifikanter Unterschied im Gehalt an freier SO_2 im Vergleich zum vollen Gebinde festegestellt werden. *O. Endres* (Speyer)

BIELIG, H.-J., FAETHE, W., KOCH, J., WALLRAUCH, S., WUCHERPFENNIG, K.: **Richtwerte und Schwankungsbreiten bestimmter Kennzahlen (RSK-Werte) für Apfelsaft, Traubensaft und Orangensaft** · Standard values and ranges of certain reference contents (RSK-values) of apple, grape and orange juices

Flüss. Obst (Bad Homburg) **49**, 188—199 (1982)

According to the newest German and EWG-regulations there are certain reference values for apple, grape and orange juice to guarantee quality and purity. The maximum levels for some metals in grape juice are: As 0.2, Pb 0.3, Cd 0.1, Hg —, Fe —, Cu 5, Zn 5 and Sn 1 mg/l. Several other anorganic and organic components with their typical contents are recommended for good quality and purity of grape juice and apple juice. The determination methods, literature and the complete German and EWG-regulations are listed. *H. Eschnauer* (Ingelheim)

CABRAS, P., MELONI, M., PIRAS, M. A., PIRISI, F. M.: **D.O.C. Sardinian wines: Vernaccia di Oristano** · D.O.C.-Weine aus Sardinien: Vernaccia in Oristano (ital. m. engl. Zus.)

Vignevini (Bologna) **8** (12), 27—33 (1981)

Ist. Chim. Farm. Tossicol., Cagliari, Italien

The main organic and inorganic compounds in 32 samples of Sardinian wines of the years 1968—1977 were analyzed. The results are within the normal limits of Italian wines, besides Pb, Cu and SO_2 which are sometimes higher than the legal Italian wine limits admit.

H. Eschnauer (Ingelheim)

CAPPELLERI, G.: **The exploitation of wine-making by-products** · Die Verwertung der Nebenprodukte bei der Weinerzeugung (ital., engl.)
Vini d'Italia **23**, 213—224 (1981)

The exploitation of wine-making by-products is of great importance, because of the increasing demand of grappa brandy, cattle food, vegetal red pigments and of grape-seed oil. Marc will be distilled for production of grappa or for industrial purpose. As marcs have been deprived of alcohol tartaric acid will be extracted by means of a dilute solution of sulfuric acid or just with hot water. Then the addition of calcium chlorid is performed. After extraction of tartaric acid, marcs are dried, and screened to separate from grape seeds. Marcs are then minced to cattle food, or they may be used as fuel in the distilleries. Extraction processes from red marcs concerning the anthocyanic pigments are based on sulfur dioxide extraction. Grape seeds are separated by vibrating sieves from the exhaused and dried marcs already in the distilleries or in the tartrate extraction plants. The oil shows an exceptional high content of linoleic acid. — Almost all lees are exploited for the extraction of tartrates and for distillation.

O. Endres (Speyer)

CASTINO, M.: **Einfluß der Mazeration mit den Rappen auf die Farbe von Rotweinen** · Influence on the colour of red wines by maceration in the presence of rachises (ital. m. engl. Zus.)
Riv. Viticolt. Enol. (Conegliano) **34**, 547—559 (1981)
Ist. Sper. Enol., Asti, Italien

Die Änderungen an Alkohol, ges. Säure und Mineralsubstanzen werden durch das Entrappen kaum beeinflußt. Durch die große Oberfläche wird ein Teil der Anthocyane von den Rappen absorbiert. Wichtig sind die zur Gruppe der Flavonole gehörenden Polyphenole, welche auf die Entwicklung der Farbe einen wesentlichen Einfluß haben. Die Zunahme an Farbe kann einer Copigmentierung zugeschrieben werden. Diese Erscheinung dürfte bei fäulnisgeschädigten Trauben von besonderem Interesse sein. Auch die Tendenz zum braunen Bruch ist deutlich gemindert. Bei günstigen Säure- und Temperaturverhältnissen wird der biologische Säureabbau nicht beeinflußt. — Eine gänzliche Entrappung der Maische wird nicht positiv beurteilt; es dürfte hingegen zweckmäßig sein, den Grad der Entrappung den Erfordernissen anzupassen.

B. Weger (Bozen)

CIOLFI, G., STEFANO, R. DI, DELFINI, C.: **Sulphur dioxide influence on volatile compounds produced by yeasts** · Einfluß von Schwefeldioxid auf die durch Hefen erzeugten Aromastoffe (ital. m. engl., franz. Zus.)
Riv. Viticolt. Enol. (Conegliano) **34**, 519—527 (1981)
Ist. Sper. Enol., Asti, Italien

Separate aliquots of a 1980 Cortese must (pH 2.95, d 20 °/20 ° 1.0856, millipore filtered) were fermented with and without the addition of 100 mg SO_2/l by 6 different pure yeasts: *Saccharomyces cerevisiae* (S46c), *S. bayanus* (S22b), *S. uvarum* (S43u), *S. italicus* (S14i), *S. rosei* (S11r) and *Schizosaccharomyces pombe* (Schiz 5), in 1 l bottles at 15 °C. SO_2 in the must caused increased wine concentrations of acetate esters (especially ethyl acetate) for all yeast strains. Thiamin addition to must countered the effect of SO_2 on yeast metabolism. Must SO_2 increased concentrations of ethyl esters when fermented by S46c; of fatty acids, acetylmethylcarbinol and 2-phenylethanol when fermented by S43u. Must SO_2 decreased concentrations of ethyl lactate, gamma-butyrolactone and ethyl 4-oxobutyrate when fermented by S11r and Schiz 5. Higher alcohols concentrations increased in SO_2 musts fermented with S46c but were essentially constant with S22b, S14i and S11r.

A. D. Webb (Davis)

FORTSOV, K., SIMOV, N.: **Veränderung der Polymerphenolverbindungen bei Rotweinen** · Changes in the polymer phenolics of red wines (bulg.)
Lozar. Vinar. (Sofia) **30** (4), 32—36 (1981)
Inst. Vinar. Prom., Sofia, Bulgarien

Schwachgefärbten Rotweinen wurde Önocyanin (Ö.) (flüssig oder pulverförmig) zugesetzt und der Einfluß auf die Polymere des Weines untersucht. — Flüssiges Ö. förderte die Bildung vor allem von braunen und gelben Polyphenolen, was zu granatfarbigem Wein führte, während pulverförmiges Ö. mehr die Bildung roter Polymere und dadurch rubinfarbene Weine nach sich zog.

N. Goranov (Sofia)

GIDÁLY, G.: **Möglichkeiten der rechnerischen Auswertung der Meßergebnisse der Dichtebestimmung nach dem Biegeschwingerprinzip unter besonderer Berücksichtigung der Temperaturangleichung der Probe** · Possibilities of the mathematical evaluation of results of density measurements according to the principle of the flexural oscillator with special regard to the temperature approximation of the sample (m. engl., franz. Zus.)

Mitt. Klosterneuburg **32**, 7—10 (1982)

Landwirtsch.-Chem. BVA, Wien, Österreich

The results of density measurements using the flexural oscillator principle are evaluated by determining the final value from the measured values during a limited phase of temperature approximation for a rational routine use of these devices. A newly developed method using the extrapolation of a regression calculation which does not require a factor depending on the sample was compared to the aforementioned classical method. Both methods gave average-value-confident limits for duplicate determinations of density of $\pm$ 3 to 7 $\times$ 10^{-5}. — The newer method can enlist the aid of computer processing for rapid and routine analysis of the data. *L. Mattick* (Geneva)

GIGLIOTTI, A.: **Phenolic compounds in wine as related to the time of maceration. Note II** · Phenolkomponenten in Wein in Abhängigkeit von der Mazerationszeit. II. Mitt. (ital. m. engl., franz. Zus.)

Riv. Viticolt. Enol. (Conegliano) **34**, 528—546 (1981)

Ist. Sper. Viticolt., Conegliano, Italien

Extraction of color (OD_{420} + OD_{520}; anthocyans and leucoanthocyans according to AUBERT; ionized anthocyans according to SOMERS) and polyphenols (OD_{280}; Folin-Ciocalteu according to SINGLETON and ROSSI; polymerized polyphenols according to SWAIN and HILLIS) was measured during maceration of a Chianti Classico blend (76 % Sangiovese, 8 % Malvasia, 2 % Trebbiano and 14 % Canaiolo) in a Garolla rotating, self-emptying fermentor of 20 hl capacity. One sample was inoculated with pure culture starter 12 h before placement in the fermentor; the other was not inoculated. Each was macerated for 48 h (10 min rotation each 2 h; 720 rotations total) and sampled every 2 h. Color extraction at 48 h with fermentation gave a Sudraud index of 0.758 contrasted with 0.805 for maceration without fermentation (color adsorbed on yeast). Total polyphenols reached 1480 mg/l with fermentation and only 980 mg/l without. Ionized anthocyans correlated well with color intensity in both experiments. Maceration with fermentation gave a higher concentration of low molecular weight polyphenols than did maceration without fermentation. *A. D. Webb* (Davis)

HOUTMAN, A. C., DU PLESSIS, C. S.: **The effect of juice clarity and several conditions promoting yeast growth on fermentation rate, the production of aroma components and wine quality** · Einfluß des Trubanteils des Mostes und verschiedener das Hefenwachstum fördernder Bedingungen auf Gärung, Produktion von Aromastoffen und Weinqualität

S. Afr. J. Enol. Viticult. **2**, 71—81 (1981)

Oenol. Viticult. Res. Inst., Stellenbosch, RSA

The effects of juice clarity, presence of oxygen, additions of ergosterol and diammonium hydrogen phosphate on fermentation rate and resultant wine composition were examined with laboratory and cellar fermentations. High-clarity juice and highly anaerobic conditions produced better wines but could cause slow or incomplete fermentations. Controlled aeration after the inoculation assisted fermentation but could lead to H_2S production. Finely dispersed grape solids and ergosterol additions increased fermentation rate. Yields of the higher alcohols were lowest with clear juice and were independent of fermentation temperature; in the presence of grape solids, yields increased with temperature. Means of regulating fermentation time and reviving lagging fermentations of clarified juice were also considered. *R. F. Simpson* (Glen Osmond)

LEO, C. DI: **The nitrate content in musts and wines of west Sicily. Note II** · Der Nitratgehalt in Mosten und Weinen aus Westsizilien II. Mitt. (ital. m. engl. Zus.)
Riv. Viticolt. Enol. (Conegliano) **35**, 118—121 (1982)
Min. Agricolt. Foreste, Palermo, Italien

The nitrate content of 44 samples of must and wine of the 1980 vintage were determined according to the method of REBELEIN. In the 10 red wines the average nitrate level was 3.93 mg/l with a maximum content of 5.46 mg/l, in the 34 white wines it was 3.15 mg/l with a maximum content of 5.29 mg/l. *H. Eschnauer* (Ingelheim)

MATTICK, L. R., RICE, A. C.: **The use of PVPP for decolorizing wine in the determination of tartrate by the metavanadate method** · Die Anwendung von PVPP zur Entfärbung von Wein bei der Weinsäurebestimmung nach der Metavanadat-Methode
Amer. J. Enol. Viticult. **32**, 297—298 (1981)
Dept. Food Sci. Technol. N. Y. State Agricult. Exp. Sta., Cornell Univ., Geneva, N. Y., USA

Determination of tartrate levels by the metavanadate procedure involves measurement of the colour complex at 520 nm. Its application to red wines requires prior removal of interfering pigments. This can be rapidly achieved by use of disposable columns (7 mm i. d. by 22 cm) packed with 0.5 g coarse PVPP (Polyclar AT). Comparisons were made between the charcoal and PVPP decolorising techniques for standard solutions and for both red and white wines. The use of PVPP was associated with more accurate colorimetric results. *T. C. Somers* (Adelaide)

MERZHANIAN, A. A., TAGUNKOV, YU. D., MISHIN, M. V.: **Entzug des Sauerstoffs vor der Imprägnierung von Grundweinen** · Desoxydation of wine materials in the production of carbonated wines (russ.)
Izv. Vyssh. Uchebn. Zaved., Pishch. Tekhnol. (Krasnodar) (6), 70—72 (1981)
Politekhn. Inst., Krasnodar, UdSSR

Grundweinen, die bei der Herstellung mit O_2 angereichert worden sind, muß vor der Imprägnierung der O_2 entzogen werden. Zu diesem Zweck leiten Verff. zunächst CO_2 bis zur Sättigung (15 min) durch den Wein. Dann werden Ascorbinsäure (50 mg/l) und SO_2 zugesetzt. Die Ascorbinsäure reagiert sehr rasch mit den Peroxiden und inaktiviert sie weitgehend. — In nicht entlüfteten Weinen wird der Großteil der Peroxide zwar auch rasch durch die Ascorbinsäure reduziert und der gelöste O_2 gebunden; jedoch wird die Ascorbinsäure zersetzt, wobei Farbprodukte entstehen.
E. Minárik (Bratislava)

MOUTOUNET, M.: **Dosages des polyphénols des moûts de raisin** · Determination of polyphenols in grape must (m. engl., dt., span., ital. Zus.)
Connaiss. Vigne Vin (Talence) **15**, 287—301 (1981)
Lab. Technol. Vég., Centre Rech. Toulouse (INRA), Castanet Tolosan, Frankreich

Further to recent evidence of gross interference from SO_2 in colorimetric measures of total phenolics in white wines by the Folin-Ciocalteu procedure, its invalidity in direct application to juices has been demonstrated. By use of model solutions, it was shown that large synergistic errors, in response to the reagent, arise from the high levels of sugars and particularly from SO_2 in highly sulphured juices. Because of these synergisms, "difference measures" before and after specific treatment for total phenolics are also invalid. The use of Sephadex LH20 for isolation of the phenolic fraction free from interferences is proposed as a preliminary to evaluation of the total phenolics by standard procedures. *T. C. Somers* (Adelaide)

MOUTOUNET, M., TAHAR, M., STREHALANO, P.: **Un exemple de vinification différée: Essais 1979—80** · An example of different methods of vinification: 1979—1980 trials
Rev. Franç. Oenol. (Paris) **21** (84), 53—58 (1981)
Lab. Technol. Vég., Centre Rech. Toulouse (INRA), Castanet Tolosan, Frankreich

Trials carried out at the INRA Experimental Field of Pech Rouge (France) refer to the elaboration

of red table wines, using unconventional techniques which could be interesting for the organization of winemaking process and for obtaining new products. The following methods of raw material preservation were used for wine production: freezing at 40 °C; thermic maceration by heating at 70 °C, with and without concentration of the must obtained; sulphite maceration, with or without must concentration. These methods do not deteriorate the wine quality. It is suggested that investigation on the vinification methods described should be continued, taking into account the different beverages. *M. Macici* (Valea Călugărească)

NACHKOV, D., MIKHAILOVA, K., KHADZHIISKI, D.: **Einige Phenolverbindungen und die spektrale Charakteristik der Rotweine** · Several phenolic compounds and the spectral characteristic of red wines (bulg.)
Lozar. Vinar. (Sofia) **30** (6), 28—31 (1981)
Vissh Inst. Khranit.-Vkus. Prom., Plovdiv, Bulgarien

Eichenextrakt, hydrolisiertes Tannin und Extrakt aus grünem Tee — als Quelle von Catechinen — wurden in Versuchen jungen Rotweinen zugesetzt. Dadurch wurde die Farbintensität der Weine verändert. Durch Erwärmung auf 55 °C (15 min) wurde die Wirkung erhöht, und die Veränderung der Polyphenole verlief wie bei der Alterung von Weinen. Auch die Menge der ionisierten Anthocyanogene nimmt zu, besonders nach Zugabe von hydrolisiertem Tannin und von grünem Tee.
N. Goranov (Sofia)

OLIVIERI, CH., SALGUES, M.: **Note sur les jus de raisins concentrés. Désulfitation et concentration** · Note on concentrated grape juice. Desulfitation and concentration
Progr. Agric. Vitic. (Montpellier) **98** (22), 779—783 (1981)
Chaire Technol. Oenol., École Natl. Sup. Agron. (INRA), Montpellier, Frankreich

The objective of this study, which is a follow-up of previous work, was to determine the most favorable conditions for the desulfitation and concentration of "mutés". Authors remind the reader of several factors that can adversely influence the removal of SO_2. Concentration was carried out with a rising-falling film plate evaporator using 1 white and 2 red grape juices of about 18 °Brix and containing from 976 to 1016 mg total SO_2/l. The temperature was maintained constant at either 60 °C, 70 °C or 80 °C. Final concentration was 62—63 °Brix. Authors recommend a 1st stage evaporation at 80—90 °C for optimal removal of SO_2, followed by a 2nd stage at 60—70 °C for further desulfitation and concentration of the juice. *C. L. Duitschaever* (Guelph)

POSTEL, W., MEIER, B.: **Gaschromatographische Bestimmung von 2-Acetolactat, 2-Acetohydroxybutyrat, Diacetyl, 2,3-Pentandion und Acetoin in Traubenmost und Wein** · Gaschromatographic determination of 2-acetolactate, 2-acetohydroxybutyrate, diacetyl, 2,3-pentanedione and acetoin in grape must and wine (m. engl. Zus.)
Z. Lebensm.-Untersuch. u. -Forsch. **173**, 85—89 (1981)
Inst. Lebensmitteltechnol Analyt. Chem., TU München, Freising-Weihenstephan

Diacetyl and 2,3-butanedione are determined by quantitative gaschromatography (Hewlett-Packard 5710A, 4.5 m × ⅛ in od column packed with 5 % Carbowax 20M on $^{80}/_{100}$ mesh Kieselgur, 10 % methane in argon at 25 ml c. g./min, injector 150 °C, column 95 °C, detector ECD 15 mCi Ni^{63} at 250 °C). 2-Acetolactate and 2-acetohydroxybutyrate are determined as diacetyl and 2,3-butanedione following oxidative decarboxylation (sample in air-filled stoppered flask 1 h at 80 °C). Acetoin is determined as diacetyl following oxidation (sample + 5 ml 50 % $FeCl_3$ + 5 ml 30 % $FeSO_4$ in air-filled flask for 1 h at 80 °C). Diketones are removed from another aliquot by vacuum distillation permitting analysis of the acetohydroxy acids following their oxidation and dicarboxylation. Diketone concentrations are obtained from the difference between oxidation of the total and diketone-free samples; acetoin by difference between the oxidized-acetoin sample and the total diketone + acetohydroxy acids sample. Analysis of 10 replicates of a young wine showed: diacetyl $\bar{x}$ = 0.28 ± 0.012 mg/l, v = ± 4.3 %; 2,3-pentane-dione $\bar{x}$ = 0.08 ± 0.007 mg/l, v = ± 8.8 %; acetoin $\bar{x}$ = 6.2 ± 0.39 mg/l, v = ± 6.3 %; 2-acetolactate $\bar{x}$ 0.44 ± 0.027 mg/l, v = ± 6.1 %, 2-acetohydroxybutyrate $\bar{x}$ = 0.16 ± 0.022 mg/l, v = ± 13.8 %. *A. D. Webb* (Davis)

SHIMIZU, J., WATANABE, M.: **Flavor characteristics of the must and wine from "Koshu" grape** · Geschmackseigenschaften von Most und Wein aus Koshutrauben (japan. m. engl. Zus.)
J. Japan. Soc. Hort. Sci. (Tokyo) **50**, 400—407 (1981)

26 volatiles were identified by GC and GC-MS in a concentrate of the acid-free CH_2Cl_2 extracts obtained from Koshu grape must (*V. vinifera:* a typical Japanese cultivar of white table wine). Most of these compounds were previously reported. However, pyridine, 2,6-ditert-butyl-4-methylphenol and tert-butyl-2-methoxyphenol were found for the first time and a relatively large amount of terpinen-4-ol (174—595 µg/l) and a trace of linalool could also be identified. Relation between the amount of terpinen-4-ol (threshold value: 300 µg/l) and the wine flavor were discussed in comparison with other grape cultivars, and it was concluded that terpinen-4-ol is one of the characteristic flavor components of Koshu grapes. *I. Ohara* (Yamanashi)

TANNER, H., ZANIER, C.: **Zur analytischen Differenzierung von Muffton und Korkgeschmack in Weinen** · Analytical differentiation between mustiness and corkiness in wines

Schweiz. Z. f. Obst-, Weinbau 117, 752—757 (1981)

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

Musty aroma in wine was identified by GC/MS as 2, 3, 4, 6-tetrachloroanisole (5—12 ppt, i.e. 10^{-9} g/l). The wine contained also pentachloroanisole (4—11 ppt) of much higher threshold value but < 1 ppt of trichloroanisole, previously shown to be the cause of corkiness. Mustiness was attributed to the use of wooden barrels and casks treated with Raco (pentachlorophenol), the continued use of which is discouraged. *C. F. Timberlake* (Long Ashton)

THOMAS, J.-C., MICHEL, B.: **Comparaison de l'efficacité de la filtration des vins sur plaques avec et sans amiante** · Comparison of the efficiency of asbestos and non-asbestos plates for wine filtration

Rev. Franç. Oenol. (Paris) **21** (84), 17—33 (1981)

2 studies were conducted in order to compare asbestos containing plates with plates of other compositions. For red wines, a clarifying filtration was conducted using asbestos K7 plates as control, 6 brands of plates made of a mixture of cellulose-Kieselgur and 1 brand made of polyethylene. For white wines, a sterilizing filtration was done with asbestos EK plates as control, 6 brands of a mixture of cellulose-Kieselgur and 2 brands of polyethylene. The parameters tested were: variations in pressure and clarity as a function of time, bacterial and yeast counts, optical density (change in color) and loss of liquid. Results obtained indicated that non-asbestos plates are in general comparable with asbestos plates and in some instances even better. *C. Buteau* (Guelph)

TROGUS, H.: **Abwasseranfall und Abwasseraufbereitung in Kellereibetrieben** · Sewage quantities and sewage disposal in wineries

Dt. Weinbau **36,** 63; 66—71 (1981)

Die Arbeit gibt einen Überblick über die Abwasserentsorgung in Weinkellereien: Gesetzliche Auflagen, Terminologie der verwendeten Begriffe, Berechnung der Abgaben, technische Maßnahmen im Betrieb. Entsorgung im Betrieb sei auf jeden Fall billiger als die Entsorgung in der kommunalen Kläranlage. [Druckfehler: S. 66 „Einleiten von T e i lstoffen". Richtig: „Einleiten von Trubstoffen"; S. 69 „Triebex". Richtig: „Trubex". — Ref.]. *L. Jakob* (Neustadt)

TYSON, P. J., LUIS, E. S., DAY, W. R., WALKER, B., LEE, T. H.: **Estimation of soluble protein in must and wine by high-performance liquid chromatography** · Bestimmung von löslichem Protein in Most und Wein durch Hochleistungs-Flüssigkeits-Chromatographie

Amer. J. Enol. Viticult. **32,** 241—243 (1981)

Sch. Food Technol., Univ. New South Wales, Kensington, N.S.W., Australien

The soluble protein fraction of must or wine is rapidly quantitated, with reference to bovine serum albumin as standard, by HPLC from a Waters size-exclusion column. Detection is by absorbance at 280 nm in a mobile phase of 0.1 M ammonium acetate containing 10 % glycerol. Such analysis of 'wine protein' precipitated with ammonium sulphate, and 'must protein' isolated by dialysis showed the additional presence of much other u. v. absorbing materials in those samples, demonstrating the inadequacy of the older methods. *T. C. Somers* (Adelaide)

VARTANYAN, L. S., AVAKYAN, B. P., TER-BALYAN. N. A.: **On the composition of wine yeast biomass in various periods of storage** · Die Zusammensetzung von Weinhefe-Biomasse während der Lagerung (russ. m. armen., engl. Zus.)
Biol. Zh. Armenii (Erevan) **34**, 1136—1141 (1981)

The changes in chemical composition of wine yeast biomass samples after fermentation and after 4 months storage were studied. The content of alcohol, titratable acidity, ash and dry matter decreased, while the content of volatile acidity, moisture, protein and biomass increased during the storage. *S. A. Abou-Donia* (Alexandria)

WAGENER, G. W. W.: **The effect of different thermovinification systems on red wine quality** · Der Einfluß verschiedener Erwärmungsverfahren auf die Rotweinqualität
Amer. J. Enol. Viticult. **32**, 179—184 (1981)
Oenol. Viticult. Res. Inst., Stellenbosch, RSA

Verf. untersuchte 3 Rotweinbereitungsverfahren (Imeca, Sernagiotto, Gasquet). Bei diesen Erwärmungsverfahren fallen mehrere Fraktionen an, die getrennt untersucht wurden. Bei Imeca und Sernagiotto waren einige Fraktionen extrem gerbstoffreich, erst die Gesamtmischung entsprach den Ansprüchen. Die schlechteste Beurteilung erfuhr das Imeca-System. *L. Jakob* (Neustadt)

YANKOV, A. T., ZHELEVA, YA.: **Temperatur und Aktivität von Enzympräparaten bei der Klärung von Rotweinen** · Temperature and activity of enzyme preparations during the clarification of red wines (bulg.)
Lozar. Vinar. (Sofia) **30** (6), 24—27 (1981)
Vissh Inst. Khranit.-Vkus. Prom., Plovdiv, Bulgarien

Untersucht wurden die Klärungsmöglichkeiten von gepreßten Rotweinen mittels Enzympräparaten bei verhältnismäßig niedrigen Temperaturen: 4—8, 10—12, 18—20 °C. — Pektolytische Enzympräparate mit Polygalakturonaseaktivität können — aufgrund der Versuchsergebnisse — bei der Klärung von Preßweinen bei den erwähnten Temperaturen verwendet werden, wenn ihre Wirkungsdauer verlängert wird. Und zwar sollten die anderen Klärungsmittel je nach Enzymmenge 6—10 d nach der Enzymapplikation zugegeben werden. *N. Goranov* (Sofia)

M. MIKROBIOLOGIE

BENDA, I.: **Untersuchungen über den Einfluß der Hefen auf einige analytisch wichtige Inhaltsstoffe des Weines** · Investigations into the influence of yeasts on some analytically important components of wines
Bayer. Landwirtsch. Jahrb. **58** (Sonderh. 2), 90—99 (1981)
Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

The influence of pure culture yeasts and natural yeast populations on the formation of alcohol, glycerol and SO_2-binding substances was investigated in laboratory and cellar experiments. Fermentation conditions are described in detail. Spontaneously-fermented musts showed a time lag in fermentation compared with pure culture yeasts. "Dry" and "liquid" pure culture yeasts yielded similar quantities of alcohol, but fermentation at 10 °C produced more alcohol than at 15 °C. The non-*Saccharomyces* yeasts of spontaneous fermentation produce a greater proportion of glycerol compared to alcohol than *Saccharomyces* strains. The contents of SO_2-binding substances in wines from all yeast strains tested are reported and the practical application of the results is discussed.
D. J. Spedding (Auckland)

DITTRICH, H. H., SPONHOLZ, W. R.: **Über Resistenzbildung und morphologische Veränderungen bei Hefen nach Anwendung von Natamycin** · Formation of resistance and morphological alterations on yeasts after using Natamycine (m. engl. Zus.)
Wein-Wiss. **36**, 431—436 (1981)

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

The effect of *Saccharomyces cerevisiae* and *S. bailii* in wines, juices, concentrates and beverages is suppressed by the addition of Natamycine. Authors found that this antibiotic develops strongly the resistance of both yeast types. In addition, the yeast cells suffer from morphological, hereditary and not reversible changes. These properties are opposed to the use of Natamycine as a preservative to beverages. *R. Woller* (Trier)

GAIA, P.: **Influence of a thiophthalimide botryticide on the activitiy of wine yeasts** · Einfluß eines Thiophthalimid-Botrytizides auf die Aktivität von Weinhefen (ital. m. franz., engl. Zus.)
Riv. Viticolt. Enol. (Conegliano) **35**, 106—117 (1982)
Ist. Sper. Enol. Asti, Italien

Some 50 yeast strains, mainly *Saccharomyces* but including *Kloeckera* and *Candida*, were screened for resistance to the effects of the *Botrytis* fungicide, Foltapet. Strains showing resistance were studied in media of higher Foltapet concentration; survival ability was correlated with delayed start of fermentation in the presence of low Foltapet concentrations (0.1 ppm). Higher Foltapet concentrations caused cells of *S. cerevisiae* strain 13 to be smaller and to lose the ability to ferment sugar. Strains of *Candida guillermondi* were most resistant to Foltapet, *Kloeckera apiculata* next, and *S. cerevisiae* strains 13 and 45 least resistant. Foltapet treated grapes are found to have higher concentrations of *C. guillermondi* in the natural microflora than do untreated grapes.
A. D. Webb (Debb)

KRAUS, J. K., SCOPP, R., CHEN, S. L.: **Effect of rehydration on dry wine yeast activity** · Wirkung der Rehydration auf die Aktivität trockener Weinhefen
Amer. J. Enol. Viticult. **32**, 132—134 (1981)

Over the last 5 years active dry wine yeasts have found acceptance in all wine producing countries. The availability of such yeast material in pellet or granular form has led many winemakers to simply pour the dry yeast unchanged into the tank, whereas others rehydrate. Authors examine rehydration of 9 commerical yeast samples at temperatures ranging from 21—43 °C. It is found that rehydration at 38—40 °C is most efficient, either in grape juice or in water. This practice results in better fermentation activity and less cell constituents are leached.
R. Eschenbruch (Te Kauwhata)

WESTHUIZEN, L. M. VAN DER, LOOS, M. A.: **Effect of pH, temperature and SO_2 concentration on the malo-lactic fermentation abilities of selected bacteria and on wine colour** · Wirkung von pH, Temperatur und SO_2-Konzentration auf die Fähigkeit zum Säureabbau von selektierten Bakterien und auf die Weinfarbe
S. Afr. J. Enol. Viticult. (Stellenbosch) **2**, 61—65 (1981)
Oenol. Viticult. Res. Inst., Stellenbosch, RSA

30 wine isolates of *Leuconostoc oenos, Lactobacillus plantarum* and unidentified strains of homo- and heterofermentative lactobacilli were tested for their ability to carry out the malo-lactic fermentation (MLF) in Cinsaut wine. The time required for completion of MLF ranged from 3 to 100 weeks with strains of *L. oenos* fermenting most rapidly. An initial SO_2 concentration of 34 mg/l afforded more rapid MLF than 61 mg/l as did a temperature of 20 °C compared to 15 °C. MLF rates in wines of pH 3.5 and 3.8 were comparable. Fermentation by the 30 cultures had no effect on wine color; some loss was attributed to higher concentration of SO_2. *D. Splittstoesser* (Geneva)