

DOKUMENTATION
DER
WEINBAUFORSCHUNG

A. ALLGEMEINES

HUGUET, J.-Y.: **Les comportements de consommation du vin en France** · Report on consumer behaviour in the French wine market

Bull. OIV 55, 498—524 (1982)

This study was made by INRA (Institut National de la Recherche Agronomique) and ONIVIT (Office National Interprofessionnel des Vins de Table) from December 1979 to January 1980 with a sample survey on 3 729 families grouping more than 11 000 people. The average frequency of wine consumption declines in young people who are also not habitual wine drinkers. The major factors which can affect consumption are: sex, local environment (rural, urban), family environment (social and economic characteristics); but the quality of the wine itself seems not to be related with the fairly steadily decline of the consumption.

R. Wagner (Villeneuve les Maguelonne)

B. MORPHOLOGIE

ZANKOV, Z.: **Trials on the juvenile status of grapevine seedlings** · Recherches sur l'âge juvénile des plants issus de pépins de vigne (bulg. m. russ., franz. Zus.)

Gradinar. Lozar. Nauka (Sofia) 18 (3), 81—87 (1981)

Vissh Selskostop. Inst. "V. Kolarov", Plovdiv, Bulgarien

Studies and analyses were conducted on seedlings of *V. vinifera* L. gained from natural pollination, in order to resume the characteristic quality in the juvenile period of their development. The distinct morphological characters were determined. It was concluded that, after the origin of the first tendril, many changes in the morphology occurred. Accurate results were not precisely stated.

J. Blaha (Brno)

C. PHYSIOLOGIE

BOOSS, A., KOLESCH, H., HÖFNER, W.: **Chlorose-Ursachen bei Reben (*Vitis vinifera* L.) am natürlichen Standort** · Reasons for chlorosis of vine (*Vitis vinifera* L.) under field conditions (m. engl. Zus.)

Z. Pflanzenernähr. Bodenk. (Weinheim/Bergstr.) 145, 246—260 (1982)

Inst. Pflanzenernähr., Justus-Liebig-Univ., Gießen

Untersuchungen von Blatt- und Bodenproben aus gesunden und chlorotischen Rebanlagen ergaben keine eindeutigen Beziehungen zwischen dem Auftreten der Chlorose und den folgenden Bodenwerten: pH, HCO₃-Gehalt, wasserlöslichem P und DTPA-extrahierbarem Fe, Mn, Cu und Zn. Bei starker Chlorose waren in den Blättern alle erfaßten Mineralstoffe erhöht, während bei schwachem Schadbild die Gehalte an P, Fe, Mn, Zn und Cu unverändert im Vergleich zum gesunden Blatt blieben. Während die in den stark chlorotischen Blättern angereicherten Mn- und Zn-Mengen fast vollständig mit 0,5 n HCl extrahierbar waren, lag dieser Wert bei dem ebenfalls stark gestiegenen Fe-Gehalt bei nur 20 %.

K. Herwig (Geilweilerhof)

DOBREVA, S., SLAVCHEVA, T., STOEV, K.: **Effect of CO₂ enriched air dressing on the photosynthesis and the productivity of young grapevine plants** · Wirkung von CO₂-angereicherter Luft auf Photosynthese und Produktivität junger Reben (bulg. m. russ., engl. Zus.)

Gradinar. Lozar. Nauka (Sofia) 18 (1), 86—93 (1981)

Inst. Lozar. Vinar., Pleven, Bulgarien

Young plants (cvs. Rkatsiteli and Cabernet Sauvignon) were grown in glass chambers for 9—54 d, the CO₂ content of the air being 0.072 %. In comparison with the control plants, the biomass increased up to 30 %. On an average the increase of root mass was 37 %; of shoots 50 % and of leaves 47 %. Under the influence of increased CO₂ concentration, the CO₂ assimilation increased from 0.035 to 0.11 % (volume), although the content of chlorophyll a and b and of carotene in the leaves decreased.

M. Milosavljević (Belgrad)

MENGEL, K., MALISSIOVAS, N.: **Light dependent proton excretion by roots of entire vine plants (*Vitis vinifera* L.)** · Lichtabhängige Protonenabscheidung durch Wurzeln intakter Weinreben (*Vitis vinifera* L.) (m. dt. Zus.)

Z. Pflanzenernähr. Bodenk. (Weinheim/Bergstr.) **145**, 261—267 (1982)

Inst. Pflanzenernähr., Justus-Liebig-Univ., Gießen

Mittels automatischer Titration wurde die Protonenabscheidung intakter *Vitis-vinifera*-Pflanzen untersucht. Die Abscheidungsrate war bei Licht und höheren Temperaturen signifikant höher als im Dunkeln und bei niederen Temperaturen. Die chlorosefestere Sorte Faber schied mehr als die doppelte Menge H^+ ab als die weniger feste Sorte Huxel; bezogen auf die Einheit Wurzelgewicht bestand jedoch zwischen beiden Sorten kein Unterschied.

K. Herwig (Geilweilerhof)

RAJASEKARAN, K., VINE, J., MULLINS, M. G.: **Dormancy in somatic embryos and seeds of *Vitis*: changes in endogenous abscisic acid during embryogeny and germination** · Dormanz in somatischen Embryonen und Samen von *Vitis*: Veränderungen der endogenen Abscisinsäure während der Embryogenese und Keimung

Planta **154**, 139—144 (1982)

Dept. Agron. Hort. Sci., Univ. Sydney, N.S.W., Australien

In extracts of somatic embryos and seeds of Glory vine (*V. vinifera* × *V. rupestris* SCHEELÉ), which were converted into a hermaphrodite by cytokinin treatment, the abscisic acid (ABA) content (ng/embryo) increased rapidly during embryogeny, while the ABA level (on a dry weight basis) in the tissues of somatic embryos decreased from the globular stage to the mature stage. Chilling (4 °C) induced normal germination of seeds and mature somatic embryos and precocious germination of globular, heart-shaped and torpedo-shaped somatic embryos. Chilling led to a reduction in endogenous ABA. Application of ABA inhibited the germination of chilled somatic embryos.

H. Düring (Geilweilerhof)

SHIMIZU, J., WATANABE, M.: **Formation of C_6 -compounds in grape berries and musts** · Bildung von C_6 -Verbindungen in Traubenbeeren und -mosten (japan. m. engl. Zus.)

J. Japan. Soc. Hort. Sci. (Tokyo) **50**, 393—399 (1981)

The difference of aroma between Koshu (supposedly *V. vinifera*, eastern Asia var.) and Riesling was examined with special regard to C_6 -compounds in berries and musts. When the berries were crushed, t-2-hexenal and 1-hexanal in the musts increased rapidly in the course of time, in contrast to 1-hexanol and t-2-hexenol. The amounts of C_6 -compounds, especially t-2-hexenal, were very large and more present in Riesling than in Koshu. However, the original content of C_6 -aldehydes in fresh berries, which was obtained by crushing with dichloromethane (C_6 -compounds development retardant), was more distinct in Koshu than in Riesling, whereas there were no differences between both varieties in the C_6 -alcohols. The amounts of these compounds were very small. Addition of SO_2 to the must at lower level (100 ppm) retarded the development of C_6 -compounds except for t-2-hexenal. Therefore, the development of C_6 -compounds was somewhat different in both varieties. The excellent aroma of Riesling was attributed to C_6 -compounds, which developed after crushing.

R. Isoda (Hiroshima)

VOSE, P. B.: **Iron nutrition in plants: a world overview** · Die Eisenernährung der Pflanze: Eine allgemeine Übersicht

J. Plant Nutr. **5** (4—7), 233—249 (1982)

Centro Energ. Nucl. Agricult., Univ. Sao Paulo, Piracicaba, Brasilien

Unter Heraushebung der einzelnen Bodeneinheiten, auf denen es weltweit zu Störungen im pflanzlichen Eisenstoffwechsel kommen kann (ca. 8,6 Mrd. ha), gibt Verf. anhand von 86 Literaturbelegen einen Überblick über Krankheitssymptome bei den einzelnen Kulturpflanzen und die Ursachen, die zur Eisenstoffwechselstörung führen. Dieses Übersichtsreferat ist einem Symposiumsbericht, der als Sondernummer in o. a. Zeitschrift unter dem Thema: „Die Eisenernährung und ihre Wechselwirkungen in Pflanzen“ erschienen ist, vorangestellt. — Auf dem im August 1981 in der Brigham Young University, Utah, USA, abgehaltenen Symposium wurde das weitgefächerte Thema in 79 Referaten schwerpunktmäßig unter folgenden Gesichtspunkten behandelt: Pflanzenphysiologie und Funktion des Eisens; Eisenaufnahme, Transport und Speicherung; Eisenstreß auslösende Mechanismen; genetische Kontrolle der Eisen-Effizienz; Pflanzenzüchtung und Selektion auf Eisenman-

gel; mikrobieller Einfluß auf den Eisenstatus der höheren Pflanze; Wechselwirkungen. Ausführungen über die Diagnose der Eisenchlorose sowie die Kontrolle derselben über Bodenbehandlung und Blattspritzung runden das Thema zur praktischen Seite hin ab. *K. Herwig* (Geilweilerhof)

ZANKOV, Z.: Investigations on the growth of vine seedlings during the monopodial development · Recherches sur la croissance des plantules de vigne pendant la période de leur développement monopode (bulg. m. franz. Zus.)

Gradinar. Lozar. Nauka (Sofia) **18** (2), 79—86 (1981)

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

Author examined the development of *V. vinifera* seedlings (Early Melnicka, Parmak red) and hybrids (Gamza × Bouquet and Gamza × Jurançon) from germination to rise of the first tendril. The detailed informations and observations concerning all the organs during their development were presented and characterised on diagrams and their time limits ascertained. The period of the development of the first leaves was about 60 d, with a leaf surface of 50—60 %. *J. Blaha* (Brno)

ZOZIKOVA, E., LILOV, D., MADOLEVA, K.: Changes in the natural auxins of grapevine reproductive organs · Veränderungen der endogenen Auxine in den reproduktiven Organen der Rebe (bulg. m. russ., engl. Zus.)

Fiziol. Rast. (Sofia) **7** (3), 42—45 (1981)

Inst. Fiziol. Rast. "Metodi Popov", Sofia, Bulgarien

The reproductive vine organs contain a large amount of auxins and are supposed to be centres of their biosynthesis. The test plants (cv. Cardinal), in which the growing processes of reproductive organs were more intensive, had more free and total auxins and almost the same amount of bound auxins compared with plants of less growth intensity, especially with regard to the reproductive organs. — Thus, the role of auxins in the growth of reproductive organs is very important. This applies more to the free than to the bound auxins. The inverse relation was found between the amounts of free and bound auxins during the investigations, and that means that one form can turn into the other and the bound forms serve as reserve. *M. Milosavljević* (Belgrad)

D. BIOCHEMIE

BEZHANISHVILI, K. N., KAKHNIASHVILI, Kh. A.: The effect of atrazine on the activity of some grapevine oxydoreductases · Die Wirkung von Atrazin auf die Aktivität einiger Oxydoreduktasen der Rebe (russ. m. grus., engl. Zus.)

Soobshch. Akad. Nauk Gruzinsk. SSR (Tbilisi) **104**, 473—476 (1981)

The influence of different atrazine concentrations (8, 10 and 16 kg/ha) on the activity of oxidative ferments in leaf and fruit (cv. Rkatsiteli and Saperavi) was investigated. The activity of d-diphenol-oxidase increased, especially in the first part of the vegetation period, higher concentrations led to stronger stimulation. The activity of the peroxidase mostly increased in the middle of the vegetation period — more intensively in the cv. Rkatsiteli, especially by higher atrazine concentrations. Smaller doses of atrazine, added at the beginning of the vegetation period, increased the catalase activity, whereas it was decreased by larger doses. At the end of the vegetation period both effects decreased significantly. *M. Milosavljević* (Belgrad)

HARVALIA, A., BENA-TZOUROU, I.: Étude de quelques facteurs influençant la couleur des vins rouges helléniques · Some factors influencing colour of Greek red wines (m. engl., dt., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) **16**, 1—14 (1982)

Inst. Vin, Min. Agricult., Lykovryssi-Amaroussion, Athen, Griechenland

Estimates of total anthocyanins and of total phenolics in 14 grape varieties from many Greek wine regions were made on the basis of analyses of skin extracts from weighed 100 berry samples.

Anthocyanins ranged from 110—1500 mg/kg and total phenolics (by Folin-Ciocalteu assay) from 900—3200 mg/kg. Principal factors influencing phenolic contents were the particular grape variety and the degree of maturity, with lesser effects from such factors as altitude, region and year of harvest. Investigations of colour composition in the young red wines showed the importance of anthocyanin concentration, the ionisation index and of the percentage of polymeric pigments.

T. C. Somers (Adelaide)

KRAUS, P.: Experiments on uptake and distribution of Bayleton in grapevines · Untersuchungen zur Aufnahme und zur Verteilung von Bayleton in Weinreben (m. franz., span. Zus.)

Pflanzenschutz-Nachr. Bayer (Leverkusen) **34**, 197—212 (1981)

For these experiments 10-week-old vines of the cv. Müller-Thurgau were used. Bayleton was applied as a 5-WP-formulation of ¹⁴C-labeled triadimefon on stems, petioles and leaf surfaces. Uptake and translocation into young leaves, the plant parts most susceptible to an attack by powdery mildew, were only observed after application on the upper part of the green stem and on petioles. Radioactivity was located in the veins and, in the younger leaves, also in the intercostal area. If Bayleton was applied to the leaf surface it was rapidly taken up and after 45 min only 45 % of the radioactivity could be washed out. The results show, that the fungicide is translocated only acropetally in the plants.

E. Bosshard-Heer (Wädenswil)

ROBINSON, J. B.: Petiole analysis for grapevines · Analyse des Blattstiels bei Reben
Austral. Grapegrower Winemaker **19** (220), 33 (1982)

3 sampling methods, namely leaf petioles at flowering, basal leaf blades in January and whole leaves at the end of bloom and at véraison were tested for determining the fertilizer needs of grapevines in South Australia. The first one gave the more reliable and consistent results. Working standard values are reported for N, NO₃, P, K, Mg, Ca, Na, Cl, B, and Zn, although work is still in progress for further verification of these values.

K. A. Roubelakis-Angelakis (Greece)

SCIENZA, A., MIRAVALLE, R., BOSELLI, M., DOROTEA, G.: Effects of the boron-lack on the development and chemical composition of the berries of *Vitis vinifera* cv. Barbera · Effets de la carence en B sur le développement et sur la composition chimique des baies de *Vitis vinifera* cv. Barbera (ital. m. franz. Zus.)

Vignevini (Bologna) **8** (11), 37—42 (1981)

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

Grapevines of the cv. Barbera, affected with the "lead disease" show an early browning of the berries. It seems that this symptom is due to a boron-lack, which causes a concentration of auxin-like substances around the embryo sacs during the first developmental stages of the fruit. Besides, it seems that the boron-lack also modifies the growth of the berries, the percentage of sugar and the titrable acidity.

G. Lombardo (Mailand)

SHIMIZU, J., WATANABE, M.: Volatile components of wine grapes · Flüchtige Komponenten in Keltertrauben (japan. m. engl. Zus.)

J. Japan. Soc. Hort. Sci. (Tokyo) **50**, 386—392 (1981)

Cent. Res. Lab., Kikkoman Corp., Noda, Chiba, Japan

Volatile components were compared in the grape must of 11 wine grape cvs. grown in Japan. Total amount of volatile compounds (alcohols, esters, aldehydes, ketones, etc. including C₆-compounds) was highest in Riesling and Chardonnay and decreased in the order of Koshu and Zenkoji, Müller-Thurgau and Sémillon, and Seibel among the white wine grape varieties. Among the red wine grape varieties, they were highest in Cabernet-Sauvignon, followed by Merlot and Muscat Bailey A. Iso-butanol, iso-pentanol, 2-phenylethanol, t-2-hexenal, 1-hexanol and t-2-hexenol were found in relatively high concentrations in all varieties examined. In addition to these compounds, Riesling was characterized by a large amount of linalool, a kind of terpene alcohol. Particularly, Müller-Thurgau contained the largest amounts of iso-butanol, acetoin and 2-phenylethanol, and Muscat Bailey A, 1-butanol, respectively. Methyl anthranilate was not identified in all varieties.

R. Isoda (Hiroshima)

E. WEINBAU

BEZHANISHVILI, K. N., KAKHIASHVILI, KH. A., UGREKHELIDZE, D. SH.: **The effect of atrazine on the contents of some phenolic compounds of the grapevine** · Der Einfluß von Atrazin auf den Gehalt einiger phenolischer Substanzen der Rebe (russ. m. grus., engl. Zus.) Soobshch. Akad. Nauk Gruzinsk. SSR (Tbilisi) **103**, 177—180 (1981)

It is reported that different concentrations of herbicide Atrazine variously affected the composition of flavonoids in grapevines. High concentrations decreased the amount of catechol and increased the content of flavonols and anthocyanins. This sensitivity of flavonoid substances is very important for the determination of the Atrazine level in general use.
J. Blaha (Brno)

BRAIKOV, D., BABRIKOV, D., PANDELIEV, S.: **Shoot growth and time of inflorescence formation in dependence on temperature regime of the grape cv. Bolgar** · Dépendance entre la croissance des rameaux fructifères, le délai de la disposition des grappes et les conditions de températures du cépage Bolgar (bulg. m. russ., franz. Zus.)

Gradinar. Lozar. Nauka (Sofia) **18** (5), 76—81 (1981)

Vishh Selskostop. Inst. "V. Kolarov", Plovdiv, Bulgarien

Low and middle-high stem training of the cv. Bolgar led to inflorescence formation on the basal part of the shoots (nodes 1—7) one week earlier than with high stem training. For the central part of the shoots (nodes 7—14) this difference was smaller and for the top part (nodes 14—20) unimportant. The period of inflorescence formation, taken from the cited shoot zones, extended with low stem over 38—44, 31—34 and 22—24 d, but with high stem: 29—31, 23—38 and 17—20 d. Under the influence of high stem, nearer to the basis of the shoots, more intensive formation and differentiation of inflorescences occurred, the process in the whole lasted 4—12 d, and the formed buds were better developed and of greater potential productivity.
M. Milosavljević (Belgrad)

BRAIKOV, D., BABRIKOV, D., PANDELIEV, S.: **Dates of inflorescence formation and differentiation of the cv. Bolgar in dependence on the training system** · Zeitpunkt der Anlage und Differenzierung der Infloreszenzen bei der Sorte Bolgar in Abhängigkeit von der Erziehung (bulg).

Lozar. Vinar. (Sofia) **30** (6), 31—37 (1981)

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

3-year examinations on low and high stem training of the cv. Bolgar have shown some correlation between the growth rate of the shoots and the inflorescence formation of the buds on the one side and stem height and temperature conditions on the other side. On low stems, shoot growth was faster, internodes were longer and inflorescence formation began one week earlier. With low stem (pruning level to 20 nodes/shoot), the inflorescence formation needed effective temperatures of 742—841 °C and, at the same time, 25—27 internodes of an average length of 209—213 cm were formed; using high stem training (the same number of nodes), 777—872 °C were needed and 23—24 internodes of 146—150 cm were formed. The period of inflorescence formation began at the end of May and lasted to mid-July. The inflorescence formation began earlier in years with higher temperatures.
M. Milosavljević (Belgrad)

CARBONNEAU, A.: **Influence des systèmes de conduite en «lyre» sur la physiologie de la vigne: Bilan actuel et résultats de nouveaux essais** · Influence of the "lyre" training system on vine physiology: present situation and results of new trials

Progr. Agric. Vitic. (Montpellier) **99** (12), 290—299 (1982)

Sta. Rech. Viticult. (INRA), Pont-de-la-Maye, Frankreich

This paper summarises aspects of training systems on radiation interception, vegetation structure affecting particularly radiation fluxes, microclimatic equilibrium between fruit and leaves, water status and actual evapotranspiration, foliage trimming and leaf removal, trunk dimensions and pruning method. The paper extends previous results from Bordeaux with the variety Cabernet Sauvignon to Merlot and Sauvignon blanc. The open lyre system shows generally improved yields, sugar content and wine quality. — First results of a new trial, planted in 1977 at Latresne, are presented. Here a combination of 3 varieties (Merlot, Cabernet franc and Cabernet Sauvignon), 2 soil

types ("dry" and humid sandy-silts), 4 rootstocks (Riparia Gloire, 101—14, SO 4 and 99 R.) with 2 training systems (single plane and open lyre) was used. The open lyre system produced a better maturity for all varieties, especially for the higher vigour situation with humid soils and improved wine quality.
R. E. Smart (Ruakura)

DRAGANOV, G., TODOROV, Kh, DRAGANOV, D., PAVLOV, N., SARIEV, G.: **Influence des distances de plantation et la formation sur la fertilité et la croissance des vignes du cépage Ugni-blanc dans la région sud de la Mer Noire** · Influence of distance and training system on fertility and growth of the grapevine cv. Ugni blanc in the southern Black Sea region (bulg. m. russ., franz. Zus.)

Gradinar. Lozar. Nauka (Sofia) **18** (5), 91—100 (1981)

Opitn. Sta. Ovoshtar. Lozar., Pomorie, Bulgarien

Increasing the interrow distances in vineyards resulted in decreased number of eyes, increased fruiting vines, but also in lowered fruiting coefficient. The umbrella system gave the best results with greater distances (3.50 × 1.20 m). Increasing distances resulted in a decreased grape harvest and in a tendency to reduced shoot growth.
J. Blaha (Brno)

DRY, P. R., HENSCHKE, P. M.: **Further results with grapevine top-grafting** · Weitere Ergebnisse bei der Umpfropfung von Reben

Austral. Grapegrower Winemaker **19** (220), 16—18 (1982)

Dept. Viticult., Roseworthy Agricult. Coll., Roseworthy, Australien

Chip and tee-bud, high level cleft and bark graft were tried with grape cv. Riesling grafted on Shiraz. "Inverted" tee-buds achieved 95 % take compared to 80 % for normal tee-budding. Time of canopy removal had no significant effect on take. For covering high level cleft grafts, black "Col-graft" was superior to the white paint. — In another trial, high level cleft graft and chip bud were compared with grafting/budding at and 3 weeks after bud burst. Time of grafting had no effect on take. With high level cleft graft, earlier grafts produced more scion shoot growth than later grafts. — Soaking cuttings in rainwater prior to fungicide treatment was beneficial. Chinisol (0.5 %) treatment for 14 h was better than Captan and Benlate for controlling mold growth.

M. Ahmedullah (Prosser)

ELIAS, P.: **Weed plants in the vineyards of the Zlaté Moravce region** · Unkraut in den Weingärten der Region von Zlaté Moravce (slowak.)

Vinohrad (Bratislava) **20**, 38—40 (1982)

Ústav Exp. Biol. Ekol., Bratislava, CSSR

The weed composition in vineyards of the Zlaté Moravce region can be divided into 2 associations: Panico-Chenopodium polyspermi and Setario-Galinsogerum parviflorae. The first occurs on clay and more damp soils, with the dominance of *Chenopodium polyspermum*, the latter requires warmer expositions on soils of neutral type, with the dominance of *Galinsoga parviflora* and *Setaria viridis*.
J. Blaha (Brno)

GÖTZ, B., MADEL, W. (Hrsg.): **Deutsches Weinbau-Jahrbuch 1983** · German viticultural yearbook 1983

Waldkircher Verlagsges., Waldkirch i. Br., **34**, 318 S. (o. J.)

Numerous technical reports on topical subjects are published in Vol. 34 of the "German viticultural yearbook 1983". Among them, those contributions dealing with grapevine protection are of particular interest owing to their ecological aspects. This applies also to the information on bee injuries which may be caused by herbicides when treating green manure mixtures containing clover seeds. It remains to be mentioned that an extensive description of the present state of knowledge is given on causes and possibilities of controlling chlorosis including questions of plant cultivation and plant breeding. Tables inform of viticulture world-wide, of trade and wine consumption, table grapes and raisins, as well as of viticultural areas and yield of important German grapevine cultivars. Grapevine protection products are specified, and a list of addresses improves the value of the excellent serial.
H. Berndt (Geilweilerhof)

HEDBERG, P. R., RAISON, J.: The effect of vine spacing and trellising on yield and fruit quality of Shiraz grapevines · Einfluß von Standweite und Drahtrahmenerziehung auf Ertrag und Mostqualität der Rebsorte Shiraz

Amer. J. Enol. Viticult. **33**, 20—30 (1982)

N. S. W. Dept. Agricult., Viticult. Res. Sta., Griffith, N. S. W. Australien

Own-rooted Shiraz vines were planted in 1969 in New South Wales, Australia. The 6 between-row spacing and trellis treatments were: (1) 1.5 m with single wire, (2) 2.25 m with single wire, (3) 3.05 m with 0.9 m T, (4) 4.55 m with 0.9 m T, (5) 3.05 m with 1.5 m T, (6) 4.55 m with 2.25 m T. In each of these treatments there were 3 within-row spacings: 1.5, 2.25, and 3.05 m. These 18 treatments afforded a range in vine density of 717 to 4304 vines/ha. Spur-pruned bilateral cordons were established 1.5 m above the soil. Nodes retained at pruning depended on pruning weight in kg (P), as for 1976, nodes = 50 P. — In the formative years, 1972—1974, the tonnes/ha, 12—24, were largely dependent on vines/ha. At, or nearer, vine maturity in 1975—1977, the maximum weight/ha of prunings was with (1), but the maximum grape yield/ha was with (6), at the narrower within-row spacing. °Brix was not treatment-related; juice pH was sometimes lower with closer spacing of vines. Authors emphasize the occurrence of “- - canopy bridging, shoot crowding and bud shading”, and that canopy separation occurred only with 2.25 m spaced canopies (2) and (6). With a 6-fold range in vines/ha, and a 3-fold range in m row/ha and in m canopy/ha, there was much within-vine compensation to afford, in 1975—1977, a 1.7-fold range in pruning weight/ha; a 1.35-fold range in shoot number/ha, and a 1.6-fold range in grape yield. — The analysis of the yield components was useful. Authors conclude that vineyard systems, as (6), which increase canopy surface area and light penetration, are desirable.

N. J. Shaulis (Geneva, New York)

HENSCHKE, P. M., DRY, P. R.: A modified method of chip-budding for top-grafting mature vines · Eine modifizierte Methode der Augenpfropfung zur Umpfropfung von Reben im Ertragsstadium

Austral. Grapegrower Winemaker **19** (220), 21—22 (1982)

Dept. Viticult., Roseworthy Agricult. Coll., Roseworthy, Australien

The techniques of top-grafting mature grapevines i.e. chip-bud, high level cleft graft, wedge graft, bark graft, and tee-bud with advantages and disadvantages of each have been illustrated with easy-to-follow figures. Tee-budding has become popular in Australia because of its relative simplicity, good take, and low cost. — Tee-budding can only commence late in the spring after the bark slip occurs. The resulting scion growth is less compared to chip bud and high level cleft. Chip bud is a good alternative to high level cleft graft. Advantages and disadvantages of chip budding relative to high level cleft grafting are discussed in detail. Experimental data are not given.

M. Ahmedullah (Prosser)

KHRISTOV, Kh. V., ALISHEV, Kh.: Investigation on the influence of interrow-cultivated plants on growth and berry set of grape shoots · Untersuchungen über den Einfluß von zwischen den Zeilen angebauten Kulturen auf Wachstum und Fruchtansatz von Rebtrieben (bulg. m russ., franz. Zus.)

Gradinar. Lozar. Nauka (Sofia) **18** (4), 87—92 (1981)

Kompleksn. Opitn. Sta. Khan Krum, Shumen, Bulgarien

Investigations were carried out on the influence of wide planting distances on growth and fertility of vines (cv. Riesling at a distance of 3.20 × 1.20). The interrows were planted with beans, sugar beets or a mixture of oats and vetch. This planting system resulted in inhibited plant growth in consequence of water deficiency and cannot be recommended for southern regions.

J. Blaha (Brno)

LARUE, T. A., PATTERSON, T. G.: How much nitrogen do legumes fix? · Wieviel Stickstoff wird durch Leguminosen fixiert?

Adv. Agron. (New York) **34**, 15—38 (1981)

In einer gründlichen Literaturstudie — die englischsprachigen Publikationen werden zurück bis 1911 berücksichtigt — versuchen Verf. diese schwierige Frage zu beantworten. Neben den verschiedenen Methoden, die zur Ermittlung der fixierten N-Menge dienen, werden die wichtigsten Leguminosen und deren N-Fixierungsvermögen dargestellt. Verf. kommen zu dem Ergebnis, daß im günstigsten Falle ca. 80 % des erforderlichen N über die N-Fixierung bereitgestellt werden.

K. Herwig (Geilweilerhof)

LEPPERT, B., DUMARTIN, P.: **Essais de différentes méthodes d'épamprage de la vigne** · Experiments with methods of sucker removal from vines
Vignes et Vins (Paris) (309), 3—7 (1982)

Removal of suckers along the trunks of Cabernet Sauvignon and Merlot vines was better, and almost complete, where the contact herbicides Gramoxone or Paraquat were applied by means of the specially designed, tractor-mounted Poupard sprayer instead of by Knapsack sprayer. The mechanical desuckering machine Dabrigeon left some shoots near the ground. Desuckering cost more when done by hand than by Poupard or Dabrigeon machines. *P. May (Adelaide)*

MORRIS, J. R., CAWTHON, D. L.: **Yield and quality response of "Concord" grapes to mechanized vine pruning** · Beeinflussung von Ertrag und Qualität durch mechanischen Schnitt von Concord-Reben
Arkansas Farm Res. (Fayetteville) 30 (6), 13 (1981)

The effect of mechanical pruning on yield, vine size and juice quality was determined for 6 consecutive years on hand pruned (30 + 10 pruning schedule) or mechanically pruned vines, followed by node adjustment, or node limitation to 60 or 90/vine. The vines were trained to the Geneva double curtain or single wire cordon system. All treatments were harvested on the same date, fruit yield was recorded, and in the final year of the study, soluble solids, pH and acidity in the fruit juice were recorded. Hand pruning, limited to 60 nodes following mechanical pruning, maintained fruit yield and juice quality comparable to hand pruning. Retaining 90 or more nodes following mechanical pruning resulted in uneven ripening of grapes, reduced fruit yields and juice quality after the 6th year. The number of nodes after mechanical pruning should be based on vines vigor.

S. Guelfat-Reich (Bet Dagan)

MORRIS, J. R., CAWTHON, D. L.: **Ethephon as a harvesting aid for "Concord" grapes** · Ethephon als Hilfsmittel bei der Ernte von Concordtrauben
Arkansas Farm Res. (Fayetteville) 31 (1), 15 (1982)

Concord grapes were sprayed with ethephon at 0, 100, 200, 300, 400 and 500 ppm, 8 d before harvest to examine its effect on stem scars of the berry during abscission, and on the juice quality of the grapes at high temperatures. Ethephon enhanced abscission of hand-shaken grapes and reduced wet and damaged scars from 90 % to 0 at 400 and 500 ppm. None of the fresh juice quality parameters were affected by ethephon treatments. Alcohol content of grapes, held during 12 and 24 h at 18, 24 and 30 °C, was examined. Alcohol content can be an indicator of quality loss and levels above 0.25 % are often associated with off-flavors in processed juice products. The ethephon-treated grapes could be held without quality loss for 12 h at 18, 24 and 30 °C. *S. Guelfat-Reich (Bet Dagan)*

NIKOV, M., PONDEV, K.: **Influence du chargement sur la croissance et la fertilité des vignes du cépage Rkatziteli. I. Influence sur la quantité et la qualité de la production** · Einfluß der Stockbelastung auf Wachstum und Fruchtbarkeit von Reben der Sorte Rkatsiteli. I. Einfluß auf die Ertragsmenge und -qualität (bulg. m. russ., franz. Zus.)

Gradinar. Lozar. Nauka (Sofia) 18 (5), 62—69 (1981)

Vissh Ikon. Inst. „Karl Marks“, Sofia, Bulgarien

Der Pflanzabstand der Reben betrug $3,2 \times 1,0$ m, die Stammhöhe 120 cm bei modifizierter Moser-Kordonerziehung. Untersucht wurden 7 Belastungsstufen: 26, 32, 38, 44, 50, 56 und 62 Augen/Stock. Der Prozentsatz entwickelter Augen und der Fruchtbarkeitskoeffizient waren negativ korreliert mit der Anzahl der verbliebenen Augen. Mit steigender Belastung vergrößerte sich die Zahl der Trauben/Stock, jedoch nicht proportional zur Augenzahl, während das mittlere Traubengewicht zur Verringerung tendierte. Das Traubengewicht/Stock nahm mit der Anzahl der stehengelassenen Augen unproportional zu. Zwischen Augenzahl und Traubenertrag bestand eine hyperbolische Abhängigkeit mit einem Maximum bei 50 Augen/Stock. Mit der Ertragssteigerung verminderte sich der Zuckergehalt der Trauben, insbesondere bei Varianten mit mehr als 50 Augen/Stock.

L. Avramov (Belgrad)

PAGLIARI, M.: **A relationship between water-deficit and wine quality in Valtellina** · Beziehung zwischen Wassermangel und Weinqualität in Valtellina (ital. m. engl. Zus.)
Vignevini (Bologna) 8 (12), 23—25 (1981)

3 different vines (Grumello, Sassella, Inferno), produced in the province of Sondrio, were examined in order to determine a relationship between their quality and the availability of water in subsequent years. — 3 periods were considered: April—June of the first year, April—June and July—September of the following year. — The most significant data were obtained for the period July to September during which the water deficiency is always high. It was possible to determine a water deficiency level that corresponded with a very high wine quality. Even higher water deficiency may damage the wine quality.
G. Lombardo (Mailand)

PÉREZ, J. R., KLEWER, W. M.: Influence of light regime and nitrate fertilization on nitrate reductase activity and concentrations of nitrate and arginine in tissues of three cultivars of grapevines · Einfluß von Lichtverhältnissen und Nitratdüngung auf die Aktivität der Nitratreduktase und die Nitrat- und Argininkonzentration im Gewebe von 3 Rebsorten

Amer. J. Enol. Viticult. 33, 86—93 (1982)

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

3 grapevine cvs. (*V. vinifera* L.) Chardonnay, Malbec and Zinfandel on their own roots were grown in sand culture at 4 levels of solar radiation induced by lathouse covering in combination with 3 levels of N (16, 4 and 1 mM nitrate). With light intensity cane dry weight was increased in all cultivars, however, cane length was maximal at 28 % sunlight. Petiole and blade nitrate concentration decreased, whereas nitrate reductase activity in leaves and arginine concentration in dormant canes increased with solar radiation level. N concentration in nutrient solution increased cane dry weight only at the high sunlight level, whereas at all lower sunlight levels both cane length and weight tended to be higher at 4 mM nitrate in nutrient solution. Nitrate concentration in the nutrient solution also increased nitrate concentration and nitrate reductase activity in petioles and also arginine concentration in dormant canes. Malbec had the highest vigor and petiole nitrate; nitrate reductase activity in petioles and arginine level in dormant canes were highest in Zinfandel. Within each cultivar, nitrate reductase activity was well correlated with dry weight of canes. It is concluded that petiole nitrate during bloom may not reflect the true N status of vineyards.

B. Bravdo (Rehovot)

RANGELOV, B., TODOROV, KH., GEORGIEV, Z.: Influence of planting distance and scion on the development of the grapevine root system · Influence des distances de plantation et de la variété fructifère sur le développement du système des racines de la vigne (bulg. m. russ., franz. Zus.)

Gradinar. Lozar. Nauka (Sofia) 18 (5), 82—90 (1981)

Opitn. Sta. Ovoshtar. Lozar., Pomorie, Bulgarien

Volume and structure of the root system of grapevines were tested at different planting distances. Cvs. Muscat red and Rkatsiteli, grafted on 41 B, were cultivated on soils with pH 4.1—4.5 using short training (Muscat 22 eyes, Rkatsiteli 40 eyes). It turned out that the most important part of the root system developed in a depth of 0.15—0.60 m.

J. Blaha (Brno)

SAROOSHI, R. A., BEVINGTON, K. B., COOTE, B. G.: Performance and compatibility of Muscat Gordo Blanco grape on eight rootstocks · Leistung und Kompatibilität der Rebsorte Muskat Gordo Blanco nach Pfropfung auf acht Unterlagen

Sci. Hort. (Amsterdam) 16, 367—374 (1982)

Hort. Res. Sta., Dept. Agricult., Dareton, N. S. W., Australia

The performance of the scion variety Muscat Gordo Blanco (syn. Muscat of Alexandria) grafted to rootstocks of Dogridge, Ramsey, Montpellier, Rupestris du Lot, 420 A M. G., 1613, 106—8 and 62—66 was compared with self-rooted Muscat Gordo Blanco. Grafting to rootstocks did not significantly increase the 7-year cumulative yield despite increased scion vigor in some cases. Many of the scions grafted to Ramsey declined and died due to graft-incompatibility, while scions on du Lot and 420 A rootstocks showed symptoms of the virus disease Legno riccio at the graft union. Authors recommend the use of self-rooted Muscat Gordo Blanco clones in planting situations in S. E. Australia where the incidence of root-knot nematode is low.

J. Downton (Adelaide)

TREEBY, M. T., CONSIDINE, J. A.: **Propagation of *Vitis champini* PLANCHON cv. Ramsey: Relationship between carbohydrate metabolism during storage and cutting performance** · Propagation de *Vitis champini* PLANCHON cv. Ramsey: Relation entre le métabolisme de l'hydrate de carbone pendant le stockage et la multiplication des boutures
Amer. J. Enol. Viticult. **33**, 53—56 (1982)

La Trobe Univ., Bundoora, Vic., Australien

Les conditions de conservation des sarments de *Vitis* spp. ont une influence sur la multiplication des boutures issues de ces sarments. Cette influence a été mise en évidence sur le métabolisme des glucides des bois non conservés, conservés au froid ou conservés dans du sable à la température ambiante. Les résultats ont montré que la multiplication consécutive à la conservation dépend des proportions entre les glucides de réserves et la fraction soluble. Une teneur élevée en glucides solubles dans les entre-noeuds correspond à un faible pourcentage de succès à la reprise au bouturage. Les teneurs en glucides solubles et en amidon sont inversement proportionnelles, mais ni la quantité d'amidon ni la quantité totale des glucides ne peuvent être associées statistiquement au pourcentage de reprise au bouturage et à la croissance future des pousses et des racines.

M. Broquedis (Talence)

F. BODEN

HANSEN, R.: **Konzentrationen und Transport von Schwermetallen im Ökotope Weinberg, dargestellt an ausgewählten Reblagen der Trierer Region** · Concentrations and transport of heavy metals in a vineyard ecotop, presented by selected vineyards in the region of Trier

Hrsg. Forschungsst. Bodenerosion Mertesdorf (Ruwertal), Univ. Trier (6), 149 S. (1980)

Sowohl in Tonschiefer, Buntsandstein und Muschelkalk der verschiedensten Verwitterungsgrade als auch in verschiedenen alten Weinbergböden mit und ohne Müllkompost (MK) und in den daraus gesammelten Sickerwässern (SW) wurden die Elemente As, Cd, Cr, Cu, Mn, Ni, Pb und Zn bestimmt, um deren Verlagerbarkeit im Bodenprofil zu untersuchen. Dabei zeigte sich, daß in den meisten Weinbergböden die Anreicherung von Schwermetallen durch anthropogene Einflüsse erfolgt. Ohne daß es zu einer gesicherten erosionshemmenden Langzeitwirkung kam, wurden As, Cd, Cr und Zn durch MK-Gaben überproportional im Boden angereichert. Die Schwermetallgehalte im SW hängen im wesentlichen von der Höhe der Temperatur und der Niederschläge und der Zeitspanne zwischen denselben ab, wobei auch die Tätigkeit von Mikroorganismen eine Rolle spielen soll. Darüber hinaus sind die Korngrößenverteilung im Bodenhorizont und elementspezifische Charakteristika von Bedeutung.

K. Herwig (Geilweilerhof)

MORLAT, R., COURBE, C.: **Caractérisation de quelques composantes du potentiel chlorotique des différents milieux carbonatés dans le vignoble du Val de Loire** · Characterization of the constituents related to the chlorotic potential in differing calcareous vineyard soils of 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

DAMBORSKÁ, M., KRIVÁNEK, V.: **Frost hardiness of virus-free grapevine clones** · Die Frostresistenz virusfreier Klone der Weinrebe (slowak. m. russ., engl., dt. Zus.)

Sbor. ÚVTIZ Ochr. Rostl. **18** (2), 89—94 (1982)

Výskumný Ústav. Rostl. Výroby, Prag, CSSR

Rebschnittholz von virusfreien Klonen des Frühroten Veltliners (FV), Grauen Burgunders (GB) und Roten Traminers (RT) wurde an 3 Terminen geschnitten und bei 4 Frosttemperaturen — bis -24°C — in Kühlschränken eingefroren. Mit der Kontrolle verglichen zeigten die virusfreien Klone unterschiedliche Ergebnisse, aber nicht eine grundsätzlich höhere Frostresistenz. Bei GB (Januar 1980) und RT (Februar 1981) war die Frostresistenz geringer als bei der Kontrolle, was auf die höheren Erträge der virusfreien Reben zurückgeführt wird. Die Unterschiede sind im allgemeinen nicht sehr groß.

D. Pospíšilová (Bratislava)

REYNOLDS, A. G., FULEKI, T., EVANS, W. D.: **Inheritance of methyl anthranilate and total volatile esters in *Vitis* spp.** · Heredität von Methylantranilat und gesamten flüchtigen Estern bei *Vitis* spp.

Amer. J. Enol., Viticult. **33**, 14—19 (1982)

Dept. Hort. Sci., Univ. Guelph, Ontario, Kanada

The objectives were to elucidate a mode of inheritance for the "foxy" labrusca flavor character based on methyl anthranilate (MA) and total volatile esters (TVE) content, and to gather preliminary information to make recommendations for its avoidance in wine grape breeding programs. MA and TVE concentrations were determined for 2 families of grape seedlings, which resulted from crosses made at Vineland, Ontario in 1972. Chi-square analysis of the segregation patterns suggested that 3 dominant complementary genes were involved in the inheritance of MA and 2 for TVE. Genotypic formulae for the parents were postulated from the results, and from examination of parental ancestries. No correlation was found between MA and TVE, or among either of these characters and soluble solids, winter hardiness, or vigor. It is concluded that the labrusca flavor character is complex genetically, is difficult to breed against, and that further study should be made on crosses between cultivars extremely rich in MA and TVE, and *Vitis vinifera* cultivars, which contain no MA and little TVE.

K. G. M. Skene (Adelaide)

SCHÖNBECK, F., DEHNE, H.-W., BALDER, H.: **Zur Wirksamkeit induzierter Resistenz unter praktischen Anbaubedingungen. I. Echter Mehltau an Reben, Gurken und Weizen** · The efficiency of induced resistance under practical culture conditions. I. Powdery mildew of grape, cucumber and wheat (m. engl. Zus.)

Z. Pflanzenkrankh. Pflanzensch. **89**, 177—184 (1982)

Inst. Pflanzenkrankh. Pflanzensch., Univ. Hannover

Durch Kulturfiltrate eines Bakteriums und zweier Pilze (Art nicht angegeben) konnte eine Steigerung der Resistenz von Reben gegen echten Mehltau erzielt werden. Eine 14tägige Spritzung der Reben (Mai—August) führte zu einer Verzögerung des Befalls und zu einer Abnahme der Befallsstärke bei Blättern. Trauben wurden kaum beeinflusst. Am besten war die Wirkung auf der Blattobenseite. Für eine wirkungsvolle Bekämpfung reicht die Methode noch nicht aus.

R. Blaich (Geilweilerhof)

WHITING, J. R., HARDIE, W. J.: **Yield and compositional differences between selections of grapevine cv. Cabernet Sauvignon** · Qualitative und quantitative Ertragsunterschiede zwischen Selektionen der Rebsorte Cabernet Sauvignon

Amer. J. Enol. Viticult. **32**, 212—218 (1981)

Dept. Agricult., Sunraysia Hort. Res. Inst., Mildura, Australien

Tests were carried out to estimate the interaction between the 2 factors genetic variation and virus-like diseases and their influence on the reproductive components as yield (number of clusters/vine, berry weight and number of berries/cluster), concentration of soluble solids and growth (weight of prunings). 8 clones of Cabernet Sauvignon coming from France, Australia and California were tested for absence of virus-like diseases by grafting to indicators. The vines were propagated

from cuttings and planted as one-year-old rootings in a randomized complete block design with 21 replications. 3 clones showed symptoms of virus-like diseases. Authors observed disease-free selections with values for yield greater and less than those associated with leaf-roll symptoms. There were significant differences between selections in each component of yield in all years. The Californian selection outyielded the Australian selections by nearly 20 %. The lowest yield showed the French clones. These observations provide that the differences between selections are not related solely to virus-like diseases but at least partly to a genetic origin.

G. Mayer (Klosterneuburg)

H. PHYTOPATHOLOGIE

ABRACHEVA, P.: **Sensitivity of some grapevine cultivars to rugose wood (legno riccio) · Anfälligkeit einiger Rebsorten gegenüber „legno riccio“ (franz.)**

Phytopathol. Mediter. (Bologna) **20**, 203—205 (1981)

Inst. Viticult. Oenol., Pleven, Bulgarien

646 grapevine cvs. were examined for the presence of symptoms of rugose wood (legno riccio) in the collection of the Institute of Viticulture and Enology, Plevan (Bulgaria). Each variety was grafted on 3 different rootstocks (Rupestris du Lot, Kober 5 BB, 41 B). 13.8 % of the varieties were symptomless; 74.7 % showed symptoms both on the canes and on the rootstocks; 11.4 % showed symptoms only on the rootstocks; one variety (Beli medanatz) showed symptoms only on the canes. The results of the observations were compared with those of similar studies previously conducted in Italy.

G. Belli (Mailand)

BASLER, P., BRUGGER, J.-J.: **Vergleich von wärmebehandelten und nicht wärmebehandelten Blauburgunderklonen · Comparison of heat-treated and not heat-treated clones of Pinot noir**

Schweiz. Z. Obst- Weinbau **118**, 379—384 (1982)

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

Field trials were made at 3 different locations in the German-speaking part of Switzerland, comparing heat-treated clones of Pinot noir and the same clones without heat treatment. Certified SO 4 was used as rootstock. During the first 4 vintage years, only very small and non significant differences were observed between the 2 types of clones, concerning grape yield, sugar content and acidity of the must, and quality of the wine.

R. Bovey (Nyon)

BASSINO, J.-P., BAILLOD, M.: **Protection intégrée contre les acariens de la vigne · Integrated control of mites on grapevines**

Progr. Agric. Vitic. (Montpellier) **99** (11), 267—271 (1982)

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

Numerous mite species Eriophyidae and Tetranychidae live on vine in Mediterranean regions. The most important phytophagous mites in southern Europe on vines: *Eriophyes vitis* PGRT., *Calepitrimerus vitis* NALEPA (Eriophyidae), *Panonychus ulmi* KOCH (red mite), *Eotetranychus carpini* OUDEMANS (yellow mite), *Tetranychus turkestanii* UGAROV and NIKOLSKI and *T. urticae* KOCH (weaver's yellow mites) (Tetranychidae). Their predators (phytoseiid mites, *Typhlodromus*) are: *Amblyseius* (*Kampimodromus*) *aberrans* OUD., *A. californicus*, *Typhlodromus pyri* SCHEUTEN, *A. andersoni* CHANT. To be mentioned also the insects: *Scolothrips longicornis* PRIESNER, *Stethorus punctillum* WEISE, ORIUS sp. In the Near East most important mites: *Eriophyes vitis*, *E. oculivitis* ATTIAH, *Tenuipalpus graniti* SAYED, *Brevipalpus lewisi* MCG., *B. phoenicis* GEJUSKES, *Tetranychus arabicus* ATTIAH, *T. cinnabarinus* BOISDUVAL, *Oligonychus vitis* ZHAER and SHEHATA and their predators: *Agistemus exsertus* GONZALEZ, *Typhlodromus pyri* SCHEUTEN, *Phytoseius plumifer* C. and F. — Phytophagous mites injury and predator's activity *P. ulmi* and *E. carpini* are present after bud burst of vines. *T. turkestanii* and *T. urticae* spend the winter on vine stock. Among the predator mites *T. pyri* is the most known species. *Typhlodromus* density is more powerful in vineyards attacked by *E. vitis*. There are 2 groups of predators: cleaning predators such as *Scolothrips* and *Stethorus* and defensive predators like *A. aberrans* and *T. pyri*. *Typhlodromus* releases give good results, the problem being its sensitivity to numerous pesticides. Thus, the number of treatments should be reduced and the application localized to suitable zones.

E. Gurevitz (Bet Dagan)

BIOL, H., NAUDIN, R., JACQUOT et al.: **Étude de l'efficacité de quelques insecticides dans la lutte contre les tordeuses de la grappe** · Study of the effectiveness of several insecticides in the control of grape berry moths
Vignes et Vins (Paris) (310), 25—29 (1982)

In the 1st generation, the moth larvae were weak. The initial study did not take this into account and a 2nd study was devised. The 2nd study indicated that Sevin L-85, Ultracide, and Rhodiatox afforded good protection when compared to a non-treated control. A biological product, Bactospeine 16000 S, was less effective. — The 2nd generation moth larvae were stronger and it was necessary to have 2 applications of the preventative treatment. Compared to the non-treated control, the insecticides Sumicidin, Penncap M, Ultracide, Sevin L-85, and Rhodiatox gave good protection. Bactospeine was significantly less effective. — Authors feel that Bactospeine should not be discarded because it could offer a biological method of control. Studies indicate that at different times and places the results may be satisfactory for Bactospeine.
L. Mattick (Geneva)

BOLLER, E.: **Eigenschaften von Insektiziden und Akariziden im Weinbau, Nebenwirkungen von Fungiziden auf Spinn- und Raubmilben** · Properties of insecticides and acaricides used in viticulture; secondary effects of fungicides on spider mites and predaceous mites

Schweiz. Z. Obst- Weinbau **118**, 119—124 (1982)

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

This paper summarizes in tables the following properties of acaricides, insecticides and fungicides used in viticulture: the mammalian toxicity classification for the 3 types of pesticides; the spectrum of toxicity of acaricides for and the inhibition by fungicides of different spider mite species; the sparing of predaceous mites by all 3 types of pesticides; the toxicity of insecticides for the 1st and 2nd generations of the grape berry moth; the growth stage of the vine at which the acaricidal treatment should be carried out; the persistence of the insecticides; the price of the pesticides, as well as some additional data. A considerable number of acaricides and fungicides, which spare predaceous mites, are available, whereas among the insecticides only *Bacillus thuringiensis* preparations (with 1 % sugar added) have no adverse effect on predaceous mites. Experience has shown that some of the latter may survive, if either insecticides with short residual activity are employed, or if the insecticidal treatment is limited to the grape area. Among the fungicides, inhibition of spider mites and conservation of predaceous mites are mutually exclusive, except for wettable sulphur and dichlofluamid. In the case of high spider mite populations, exclusive reliance on the spider-mite-inhibiting properties of fungicides may not prevent unpleasant surprises 3—4 weeks after conclusion of the antimildew spray program, e.g. with mancozeb, in late summer. *K. R. S. Ascher* (Bet Dagan)

CREDI, R., BABINI, A. R., BETTI, L., BERTACCINI, A., GELLI, C.: **A distinctive isolate of strawberry latent ringspot virus from grapevines in Italy** · Ein unterschiedliches Isolat des latenten Erdbeer-Ringflecken-Virus bei Reben in Italien (m. ital. Zus.)

Phytopathol. Mediter. (Bologna) **20**, 56—63 (1981)

Ist. Patl. Veg. Univ. Bologna, Italien

An isolate (named 106/8) of strawberry latent ringspot virus (SLRV) was obtained from Italian grapevines showing chlorotic mottling, asymmetry and malformation of leaves and stunting. Virus particles of this isolate resembled those of the type isolate in resolving into separately sedimenting components in sucrose gradients, in their electron microscope appearance and in their absorbance spectra. Type isolate and isolate 106/8 were, however, readily distinguishable serologically (SDI=4) forming spurs in immunodiffusion tests. Also unlike other isolates of SLRV, 106/8 failed to infect *Nicotiana* species. In thin sections of infected tissue from leaves and meristems, virus particles were observed in small aggregates in the cytoplasm and in paracrystalline arrays in vacuoles.

M. Mayo (Dundee)

EWART, A. J. W., HARBORD, R. R.: **The use of a chemical bird repellent and its effect on white wine fermentation** · Die Anwendung eines chemischen Vogelabwehrmittels und dessen Einfluß auf die Weißweingärung

Austral. Grapegrower Winemaker **19** (220), 34—36 (1982)

Roseworthy Agricult. Coll., Roseworthy, Australien

Bird damage in vineyards is a perennial problem and contributes to significant crop losses each year. Recent attention has focused on the use of chemical repellants, on the basis of making the grapes unpalatable to the birds and induce vomiting. Mesurol is becoming more widely used (also known as Methiocarb, Mercaptodimethur and Metmercapturon) and is effective against pheasants, sparrows, grackles, tricoloured blackbirds, brown headed cowbirds and California quail. Mesurol inhibits acetylcholinesterase thus preventing the cleavage of acetylcholine. The result is interference with cholinergic transmission in the central nervous system and resultant nausea and lack of appetite. LD₅₀ values of 130—135 mg/kg body weight have been reported for rats, 12—15 mg/kg for starlings. It is moderately toxic to fish with reports of an LD₅₀ of 0.64 mg/kg for rainbow trout. The significance of spraying only the outside 3 rows is based on the assumption that the birds begin their feeding from the edges of the vineyard. The use of a boom type sprayer increases the application of material to approximately 1100 l/ha. It reduces the labour component to one operator and enables more rapid travel through the vineyard cutting the spraying time into halves. A similar saving can also be made using an airblast sprayer at rates of approximately 100 l/ha. There is no significant difference in the fermentation rates for control 2, 20 and 100 ppm Mesurol additions, (the juice was fermented to dryness using *Saccharomyces cerevisiae*). Mesurol would appear to have no detrimental effect on wine quality. There are numerous reports of successful bird repelling activity of Mesurol and it seems to be a useful adjunct in the control of bird damage in vineyards.

E. Gurevitz (Bet Dagan)

FAORO, F., TORNAGHI, R., FORTUSINI, A., BELLI, G.: **Association of a possible closterovirus with grapevine leafroll in northern Italy** · Zusammenhang zwischen einem möglichen Closterovirus und der Blattrollkrankheit bei Reben in Norditalien (m. ital. Zus.)

Riv. Patol. Veg. (Pavia) Ser. 4, 17, 183—189 (1981)

Ist. Patol. Veg., Univ. Mailand, Italien

Electron microscope examination of ultrathin sections of 4 different clones of the cv. Barbera, grown in northern Italy, which carried the leafroll disease (as indicated by indexing), revealed the presence of masses of long flexuous filaments. The filaments were about 10 nm in diameter, sometimes arranged in paracrystalline arrays, in some cases found in bundles in the cytoplasm companion or parenchymatic cells which were not completely degenerated. The filaments were present only in diseased plants, associated with vesicles containing a fibrillar network, and were not P-proteins. No other inclusion bodies were found. This evidence leads to the conclusion that the particles seen in E. M. have the characteristics of the closterovirus group. This data agrees with the report of NAMBE *et al.* (1979) from Japan.

E. Tanne (Bet Dagan)

FERRIS, H., SCHNEIDER, S. M., STUTH, M. C.: **Probability of penetration and infection by root-knot nematode, *Meloidogyne arenaria*, in grape cultivars** · Die Wahrscheinlichkeit des Eindringens in und den Befall von Rebsorten durch den Wurzelgallennematoden *Meloidogyne arenaria*

Amer. J. Enol. Viticult. 33, 31—35 (1982)

Dept. Nematol. Univ. California, Riverside, Calif., USA

Rooted cuttings of 11 grape cultivars and rootstocks were inoculated with larvae of root-knot nematode, *Meloidogyne arenaria* and the rates of penetration and establishing feeding sites recorded. The relationships between number of nematodes penetrating or establishing feeding sites and physiological time were described by logistic functions. The results showed that resistance is expressed as a lack of, or reduced, penetration of the root system primarily, with failure to establish infection sites or induction of host biochemical defenses.

B. Weischer (Münster)

FLAHERTY, D. L., PEACOCK, W. L., BETTIGA, L., LEAVITT, G. M.: **Chemicals losing effect against grape mealybug** · Wirkungsverlust von Chemikalien gegenüber der Rebenschmierlaus

Calif. Agricult. 36 (5—6), 15—16 (1982)

Coop. Ext., Univ. California, Visalia, Calif., USA

Grape mealybug, *Pseudococcus maritimus* (EHRHORN), a pest of table grapes in the San Joaquin Valley, California, can be particularly damaging to Ribier and Emperor tabel grapes, especially in bunches that contact the bark. Populations of the mealybug are seldom high in raisin and wine grapes where pesticides are used considerably less. Parathion in combination with oil applied

during the dormant season has given excellent control. However, in recent years there have been many reports of poor control with the parathion. The grape mealybug control trials were conducted during 1978—81 in an Emperor table grape vineyard in Terra Bella (Tulare County) with intensive treatments of grape mealybug and other grape pests: spider mites — Pacific mite, *Tetranychus pacificus* McGregor, and Willamette mite, *Eotetranychus willametti* EWING — and what effect the treatments have on predaceous mite, *Metaseiulus occidentalis* NESBITT. In these trials were applied parathion, dinoseb (Premerge 3, Dow General), permethrin (Ambush), Chlorpyrifos (Lorsban 4E), and methidathion (Supracide 2E). These studies validate reports of difficulty in controlling grape mealybug during the dormant season with the currently registered rate of parathion (2.5 lb a. i./acre) and suggest that a high rate (5 lb) is in order. The pyrethroid permethrin (Ambush) gave very poor control. 2 dinoseb-containing materials (Premerge 3 and Dow General) showed some promise, but neither gave significant control of overwintering spider mites. Both materials also were detrimental to predaceous mites as was permethrin. In another vineyard that had few insecticide treatments, parasitism was 46 % and mealybug activity was below the economic level of 2 %. In view of the problems, future studies should consider integrating natural enemies into grape pest management systems. *E. Gurevitz* (Bet Dagan)

GARIBALDI, A., GULLINO, M. L., GULLINO, G.: **Overwintering of *Botrytis cinerea* PERS. in vineyards of Piedmont (northern Italy)** · Überwinterung von *Botrytis cinerea* PERS. in Rebanlagen von Piemont (Norditalien) (ital. m. engl. Zus.)

Phytopathol. Mediter. (Bologna) **20**, 38—42 (1981)

Ist. Patol. Veg., Univ. Torino, Italien

Studies carried out in Piedmont (northern Italy) in 1977—1980 on several wine grape cvs. (Barbera, Moscato d'Asti, Grignolino, Bonarda and Nebbiolo) have shown that *Botrytis cinerea* overwinters with high frequency under mycelial and sclerotial forms in the bark of the canes and, occasionally, as mycelium in the buds. The level of contamination depends on the cultivar, the locality from which infected material originates and the climatic conditions prevailing in the preceding winter. In vines that had been sprayed with fungicides active against *B. cinerea* such as Vinclozolin, Procyimidone, Dichlofluanid and Benomyl, the contamination rate of bark and buds was much lower than in non-treated plants. *G. P. Martelli* (Bari)

GULLINO, M. L., GARIBALDI, A.: **Biological properties of dicarboximide-resistant strains of *Botrytis cinerea* PERS.** · Biologische Eigenschaften von Dicarboximid-resistenten Stämmen von *Botrytis cinerea* PERS.

Phytopathol. Mediter. (Bologna) **20**, 117—122 (1981)

Ist. Patol. Veg., Univ. Torino, Italien

Die biologischen Eigenschaften von 20, durch Kultur auf Vinclozolin-haltigem Agar isolierten resistenten Stämmen von *B. cinerea* wurden mit denen ihrer sensitiven Elternstämme verglichen. — 80 % der Vinclozolin-resistenten Stämme zeigten ein geringeres Mycelwachstum, 10 % wuchsen gleich und weitere 10 % besser als die sensitiven Ausgangsstämme. Die Sporenproduktion war im allgemeinen bei den resistenten Populationen erniedrigt, einige wiesen jedoch gleiche bzw. höhere Sporulationsraten auf. Resistente Stämme produzierten, mit einigen Ausnahmen, mehr Sklerotien als sensitive. Generell führte die Inokulation von Beeren mit resistenten Stämmen gegenüber einer Infektion mit sensiblen zu einem geringeren *Botrytis*-Befall; jedoch zeigte auch hier ein resistenter Stamm deutlich erhöhte Aggressivität. Die Kultivierung einer Mischung von resistenten mit den entsprechend sensitiven Pilzen auf fungizidfreiem Agar führte bei 2 Stämmen nach 1 bzw. 4 Generationen zum Abbau der Resistenz, bei einem dritten resistenten (und aggressiven!) Stamm blieb diese jedoch unverändert erhalten. Bei *in-vivo*-Experimenten im Weinberg zeigten Vinclozolin-resistente Stämme generell ebenfalls verminderte Sporulation, ein schwächeres Hyphenwachstum sowie geringere Pathogenität. Obwohl Dicarboximid-resistente Stämme in der Regel eine verminderte Pathogenität aufwiesen, stellt doch das vereinzelte Auftreten resistenter und gleichzeitig hoch aggressiver Individuen vor allem im Hinblick auf deren mögliche Durchsetzung und Verbreitung ein nicht zu unterschätzendes Problem dar. *U. Stein* (Geilweilerhof)

LA HARPE, A. C. DE, ARCHER, E.: **Effect of growth arrestment disease on the anatomy and ultrastructure of *Vitis vinifera* L. var. Sultana** · Einfluss des „growth arrestment disease“ auf Anatomie und Ultrastruktur von *Vitis vinifera* L. var. Sultana
S. Afr. J. Enol. Viticult. (Stellenbosch) **2**, 51—59 (1981)

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

The anatomical and ultrastructural changes in *Vitis vinifera* L., cv. Sultana caused by the disorder known in South Africa as "growth arrestment disease" (GAD) were investigated using scanning and transmitted electron microscopy as well as light microscopy. Characteristics symptoms of GAD are stunted shoot growth between budbreak and flowering, flower shatter, small size leaves, darkening of peduncle and pedicels at the time of flower shatter, and small shiny spots on laminae of leaves. Scanning electron microscopy showed that the epidermal layer within the shiny spots on leaves was collapsed and the cells appeared to be plasmolyzed. GAD flower clusters were characterized by hardened peduncle, plasmolyzed cells, tannins in cells displaced to one side and disassociation of periderm cells. The cells of the peduncle were characterized by a granular appearance. Authors postulate that heat and moisture stress may induce abnormal physiological changes giving rise to GAD.

W. M. Kliever (Davis)

LEE, T. C., WICKS, T.: **Dual culture of *Plasmopara viticola* and grapevine and its application to systemic fungicide evaluation** · Kultur von *Plasmopara viticola* auf in vitro-kultivierten Reben als Testmethode für systemische Fungizide

Plant Disease (St. Paul) **66**, 308—310 (1982)

Dept. Agricult., Adelaide, S. A., Australien

Cultures of *Plasmopara viticola* on *Vitis vinifera* (cv. Cabernet Sauvignon and Cabernet Franc) were used to demonstrate the curative properties of metalaxyl (2,6-dimethyl-phenyl-methoxyacetyl-alanine-methylester, "Ridomil"). The shoots of the plantlets were dipped into a suspension of sporangia, resulting in a 60 % infection of the leaves. Sporangia appeared after 5 d on both sides of the leaf, the length of the conidiophores was approximately 1 mm, which is the twofold length of normal ones. The method is also proposed as a screening test for resistant grape cultivars.

R. Blaich (Geilweilerhof)

MAGAREY, P. A., WACHTEL, M. F.: **The Rhine Riesling problem — recent findings** · Das Rheinriesling-Problem — neuere Erkenntnisse

Austral. Grapegrower Winemaker **19** (220), 79—80 (1982)

S. A. Dept. Agricult., Loxton Res. Centre, Loxton, Australien

The "Rhine Riesling problem" is a grapevine disease which has been recently recorded in several Australian vineyards. Crop losses of 5 % are common, but in some cases losses of 60 % have been recorded. On the basis of the symptomatology Authors think that the disease belongs to the group of vine yellows and probably is identical with Flavescence dorée. Research is in progress in order to verify this hypothesis.

G. Belli (Mailand)

MONCOMBLE, D., ROUAS, G.: **La lutte contre les tétranyques** · Control of Tetranychidae
Vigneron Champ. (Épernay) **103**, 203—207 (1982)

The two species of Tetranychidae attacking vine in Champagne are: *Panonychus ulmi* frequently called red spider, *Tetranychus urticae* frequently called yellow spider. A third species detected in Verzenay is a yellow spider allied biologically to *T. urticae*. The reasons of actual pullulation are varying: hot and dry climate, presence of weeds, and insecticide treatments. It seems that spider biology be favoured by good nourishing conditions induced by certain insecticide or fungicide treatments. The consequence is: increased longevity, greater fertility and numerous laying of eggs. Viticulturist will have 2 choices: treatment period and product to utilize. Treatment period: red spiders in spring at stage of 3—4 (yellow spiders at stage of 5—6) displayed leaves and in summer in August before winter eggs are deposited. Interference must be justified by the appearance of mites. Product choice: different acaricides in precocious spring treatment (stage 3—4 leaves to red spiders) can be classified as follows: Acafor, Artaban, Animert, Peropal, Acaryl, Tedion extra. In late spring treatment can be completed by systemic acaricides. Careful spraying is necessary because most of the spiders exist on an inferior face of leaves. A summer trial in Cumières in 1981 against red spiders gave good results with Peropal, Pyrethrine and Acaryl.

E. Gurevitz (Bet Dagan)

PROTA, U., GARAU, R. CUGUSI, M.: **Studies on some variable characters of grapevines affected by enation disease in Sardinia** · Untersuchungen über einige veränderliche

Merkmale bei enationenkranken Reben in Sardinien (m. ital. Zus.)

Phytopathol. Mediter. (Bologna) **20**, 7—12 (1981)

Ist. Patol Veg., Univ. Sassari, Italien

Some observations are reported on the symptoms expressed by grapevines affected by enation disease. The symptoms vary from year to year, possibly in a cyclical fashion and the suggestion that delayed opening of buds and slow development of the shoots were associated with enation disease was confirmed. When stem grooving was present in addition to enation disease, then the reductions in growth of affected vines associated with each condition were combined. Also stem grooving was more frequent in 'Italia' and 'Moscato d'Amburgo' vines which had enation disease than in those which did not. Enation disease was transmitted by grafting the healthy scions, including LN33, together with fanleaf, leaf roll, fleck and corky bark symptoms. *M. Mayo* (Dundee)

RADMAN, L., NADAZDIN, V.: A contribution to the study of two *Sphaeropsis* species parasites of the bark of grapevine in Herzegovina, Yugoslavia · Beitrag zur Untersuchung von zwei Schädlingen der Rebenrinde, *Sphaeropsis* species, in der Herzegowina, Jugoslawien

Phytopathol. Mediter. (Bologna) **20**, 83—84 (1981)

Fac. Agricult., Univ. Sarajevo, Jugoslawien

Observations were carried out in the vineyards of Herzegovina with bark decay, for determining the prevalence and distribution of *Sphaeropsis* spp. 2 species of this fungus were found: *Sphaeropsis malorum* BERK. and *S. pseudodiplodia* SACC. Both species induced bark necrosis and cankers that cracked longitudinally the vine arms, thus reducing their vigour. *S. pseudodiplodia* has wet spores which are disseminated by the rain and is more commonly encountered in the vineyard than *S. malorum*, whose pycnosporos are wind-borne. Apart from this difference which, however, is not consistent, the two fungi are very similar and may be regarded as forms of *S. malorum*. Cardinal, Alicante and the local cv. Trniak proved susceptible to both fungi. *G. P. Martelli* (Bari)

RAMBIER, A.: Un acarien, sur vigne en Champagne, nouveau en France: *Tetranychus mcdanieli* MCGREGOR 1931 du groupe *Pacificus* · Eine in Frankreich neue Spinnmilbe an Reben der Champagne: *Tetranychus mcdanieli* MCGREGOR 1931 aus der *Pacificus*-Gruppe

Vignerons Champ. (Épernay) **103**, 266—271 (1982)

Progr. Agric. Vitic. (Montpellier) **99** (11), 261—266 (1982)

Im Jahre 1981 traten in und um Verzenay in der Champagne ausschließlich an Reben Spinnmilben auf, die der amerikanischen Art *T. mcdanieli* zugeordnet werden konnten. Es besteht eine nahe Verwandtschaft zu *T. pacificus*, der bedeutendsten Schadmilbe der Reben in Kalifornien. Auf Grund der Literatur werden einige Daten zur Biologie gegeben: Überwinterung als orangefarbenes Weibchen unter der Rinde; optimale Eiablage bei 29—32 °C; ca. 50—100 Eier/♀; Entwicklung der Milbe in ca. 15 d; 7—9 Generationen/Jahr. Die Art tritt sonst bevorzugt in Obstanlagen auf. Resistenz gegen Akarizide ist bekannt; einen Gegenspieler stellt die Raubmilbe *Typhlodromus occidentalis* dar. Die Lebensweise und das Schadbild gleichen jenen von *Tetranychus carpini*. Bekämpfungsversuche deuten bereits jetzt auf Schwierigkeiten hin, vor allem wegen der nicht auszuschließenden Resistenz gegen Akarizide. Die Herkunft der neuen Schadmilbe und die möglichen Probleme werden im Vergleich zu den bereits jetzt an Reben in Frankreich nachgewiesenen Spinnmilbenarten diskutiert. *G. Schruft* (Freiburg)

REDL, H.: Die Auswirkungen von Spätfrösten auf den Traubenertrag und die Problematik der Schadensschätzung · The effects of late frosts on the grape yield and the problems of the evaluation of the damage (m. engl., franz. Zus.)

Mitt. Klosterneuburg **32**, 1—6 (1982)

Inst. Pflanzensch., Univ. Bodenkult., Wien, Österreich

The late frosts in April 1981 made it possible to undertake an evaluation of the grape yield and to compare some methods of evaluation using the cvs. Grüner Veltliner and Rheinriesling. — When estimating immediately after frost, a relatively accurate prognosis was secured, provided the buds in tomentum and the shoots with a green basis were regarded as survival. In most cases, these developed later shoots from axillary buds. On the other hand, dwarf-shoots and fertile shoots could

have a negative influence on the evaluation. An estimation of the grapes carrying shoots during blossom was more precise because an exact calculation of the yield of the shoots from axillary buds was possible. Water shoots were only fertile in few cases. — With the help of these methods, a measurement of the grape yield is possible, but the accuracy is influenced by many factors of uncertainty.
S. Baranski (Geilweilerhof)

SPARAPANO, L., FERRARA, G., FRISULLO, S., CICCARONE, A.: **Preliminary observations on the estivation of *Botrytis cinerea* PERS. ex FR. in grapevine berries in Apulia** · Erste Beobachtungen zur Übersommerung von *Botrytis cinerea* PERS. ex FR. bei Traubenbeeren in Apulien (ital. m. engl. Zus.)

Phytopathol. Mediter. (Bologna) 20, 152—163 (1981)

Ist. Patol. Veg., Univ. Bari, Italien

Observations on flower organs and fruits of grapevine were carried out in 1977 and 1978 from anthesis to full ripening for studying the development of summer infections of *Botrytis cinerea* in Apulia (southern Italy). Samples were collected from over 50 vineyards of different cvs. of both table (Regina, Ohanez, Cardinal, Panse precoce) and wine grapes (Sangiovese, Primitivo, Barbera, Negramaro, Uva di Troia), growing in the central planes near Foggia, the Ionian coast and the hills north and south of Bari. In both years, *B. cinerea* infections at the stylar end of the berries were very few from the end of June to the middle of August when the early autumn rains began. Conversely, aborted flowers or flower parts that remained trapped in the maturing bunches, the basal end of the berries around the pedicel and, in general, any necrotic or decaying tissues, all contained the fungus, thus acting as the site for its perpetuation through summer and foci for subsequent infection and spread. Difference in the morphology and internal structure of styles of different cvs. were found. These may account for the conflicting results reported in studies on the estivation of *B. cinerea* in grapevine berries made on different cvs. and environments.
G. P. Martelli (Bari)

STRIZYK, S.: **Application à *Plasmopara viticola*. Modèle d'état potentiel d'infection** · A model for the potential status of infection as applied to *Plasmopara viticola*

Publ. Assoc. Coordination Tech. Agric., Paris, 25 S. (1982)

Author tries to develop a model allowing a forecast for potential infections of *Vitis* by *Plasmopara viticola*. It is developed from meteorological data as compared to the observed infections. Although Author offers programs for a TI 59 pocket calculator, the model seems to be too complicated for a practical application.
R. Blaich (Geilweilerhof)

J. TECHNIK

CHARLES, J.-M.: **Le dosage des gaz dissous dans les vins** · The determination of dissolved gases in wines

Rev. Franc. Oenol. (Paris) 22 (86), 31—33 (1982)

Dissolved O₂ influences the wine very badly and very quickly. Similar CO₂ content in wine preserves all the good organoleptic qualities. Therefore, a rapid determination of both gases is most important. An electrochemical method with 2 metallic electrodes for direct determination of O₂ and CO₂ in wines is recommended.
H. Eschnauer (Ingelheim)

FETTER, K., SCHREIBER, R., SEIFERT, O.: **Vergleichende Betrachtungen zwischen Hand- und Maschinenlese aus kellerwirtschaftlicher Sicht** · Comparative considerations between hand and mechanical harvesting in view of winery operations

Dt. Weinbau 37, 950—952 (1982)

LLVA f. Wein- Gartenbau u. Landwirtschaft., Bad Kreuznach

Authors investigated differences between hand and mechanical harvesting (m.h.). Lees contents were different in the resulting musts and wines and higher with m.h. M.h. did not effect quality of wines after care, but young wines tasted cleaner after hand harvesting. Analysis showed that m.h. gave slightly higher total phenols, catechins and K levels.
W. Flak (Wien)

FIG, V., JUNGOVÁ, O.: **Mechanical grape harvest and treatment of musts and wines** · Die mechanische Traubenlese und Behandlung von Maischen, Mosten und Weinen (tschech.)

Vinohrad (Bratislava) **19**, 218—219; 244—245 (1981)

Komplexný Výskumný Ústav Vinohradn. Vinár., Bratislava, CSSR

Results are given of many quality trials of grapes after mechanical harvest (vibratory system). Because a large part of the berries are jammed, it is necessary to sulphurise the harvest during its shipment (dose 16—24 g/100 kg). This dose must be adapted to the other conditions. The grape harvest must be elaborated within 4—8 h. The addition of 2—3 % yeast culture and 1 g/l Bentonit is recommended. Convenient management and support systems are of special importance for the wine quality.
J. Blaha (Brno)

IANNINI, B.: **Mécanisation de la taille en vert et du palissage** · Mechanization of shoot-tying and of summer-pruning

Bull. OIV **55**, 367—382 (1982)

Ist. Sper. Viticolt., Conegliano, Italien

The balance between vegetative and reproductive growth must be adjusted in most commercial vineyards by corrective, annual measures. After reviewing the physiological basis of these measures, the paper describes the mechanisation of shoot tying and summer-pruning under Italian conditions. The use of foliage wires facilitates these practices. Mechanical tying is mainly done with the machine Volentieri, a licenced version of the French machine Dagnaud, that lifts trailing shoots and ties them to the trellis wires. A one-sided prototype model, developed in Turin, is particularly suited to hilly conditions. The time needed for tying is 15—20 × less by machine than by hand, and damages to vines or crops are similar and low. 6 types of machines for summer-pruning are in use. They cut shoots either by cutter bars, rotating and fixed blades or by tooth-edged discs. The machines cover 1 ha in 1 h, compared with 25 h needed for hand-pruning; they cause little damage. A further, rapid expansion in the use of machines for tying and summer-pruning is predicted.

P. May (Adelaide)

KNOLL, P.: **Klärung von Most und Wein im Separator** · Clarification of must and wine with centrifuge

Dt. Weinbau **37**, 778—780; 785—787 (1982)

Die Niederschrift eines Vortrages berücksichtigt insbesondere die Konstruktionsprinzipien eines Herstellers. Es wird der Versuch unternommen, die Klärleistung zu definieren; die Steuerungsmöglichkeiten für den Trubaustrag und das Thema „Sauerstoffaufnahme“ werden behandelt.

L. Jakob (Neustadt)

LOTT, H.: **Der Einfluß des Traubenvollernters auf die Weinqualität** · Influence of mechanical harvesting on the wine quality

Dt. Weinbau **37**, 958—960 (1982)

LLVA f. Landwirtsch. Wein- Gartenbau, Oppenheim

Examinations carried out over 5 years showed no significant differences between hand and mechanical harvesting. Both methods gave comparable contents of lees and total phenols. Further research is required to find out possible quality losses with mechanical harvesting in case of *Botrytis*-infected grapes.
W. Flak (Wien)

MAUL, D.: **Ergebnisse beim Einsatz von Traubenvollerntern im Weinbaugebiet Rheinpfalz** · Performance of mechanical grape harvesters in the vineyards of the Rhine Palatinate

Dt. Weinbau **37**, 945—950 (1982)

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

The already proven self-drive grape harvesters of the types Howard, Femenia, Vectur-France, Braud and Ero performed slightly better than the newer, tractor-drawn machines of the types Kreiger, Mosella and Braud during the 1981 harvest in the German vineyards of the Rhine Palatinate. Grape losses during machine harvest depended on cultivar and exceeded those incurred during

hand-harvest by 2—15 %. Less than 1.5 % of the total yield remained on the vines as bunch stems. Wine quality was unaffected and vine damage insignificant. The standard arched-cane training method was suitable. For the cost of machine harvest to equal that of hand harvest, self-drive and tractor-drawn machines had to operate on 40 ha or 15 ha, respectively per season.

P. May (Adelaide)

PFUFF, F.: Die mechanische Traubenernte — Entwicklungstendenzen und Einsatzgrenzen · Mechanical harvesting — its trends and limits of use

Dt. Weinbau **37**, 938—944 (1982)

LLVA f. Landwirtsch. Wein- Gartenbau, Oppenheim

This well-presented and illustrated review article discusses the present state of mechanical harvesting in the Rhine Palatinate and outlines possible future developments such as small self-drive machines, three-wheel machines, the trunk-shake principle, more effective separation of the berries from foreign matter and even field crushing and pressing. It stresses the importance of avoiding soil compression by heavy machines.

P. May (Adelaide)

SÖLVA, J.: Welche Rebkrankheiten und Schädlinge können mittels Beregnung bekämpft werden? · What grapevine diseases and parasites can be controlled by means of sprinkler irrigation?

Obstbau Weinbau (Bozen) **19**, 163—164 (1982)

Verf. beschreibt weinbauliche Krankheiten und Schädlinge Südtirols, gibt Hinweise zu ihrer Bekämpfung und zur Mittelwahl und beurteilt die Erfolgsaussichten bei Applikation mittels Beregnung.

W. Hofäcker (Domäne Niederhausen)

STRENG, P., UHL, W.: Die Reduzierung der Brühe- und Wirkstoffmengen beim Pflanzenschutz im Weinbau — eine Möglichkeit des integrierten Pflanzenschutzes · Reduction of the application rate of spray liquid and active substances in viticultural plant protection — one possibility of integrated plant protection

Bayer. Landwirtsch. Jahrb. **58** (Sonderh. 2), 33—45 (1981)

Bayer, LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

In 2jährigen Feldversuchen konnte in Franken nachgewiesen werden, daß insbesondere durch Reduzierung der Brühemenge, aber auch durch Reduzierung der Wirkstoffmenge die biologische Wirksamkeit bei der Bekämpfung von pilzlichen Krankheiten und tierischen Schädlingen gegenüber üblichen Sprühverfahren erhalten blieb. Die Menge der Trägerflüssigkeit wurde entsprechend der Vegetation der Rebanlage zum Zeitpunkt der Behandlung von 400 und 800 l/ha auf 1/3, d. h. auf 50—100 l/ha im sog. Feinsprühverfahren reduziert. Die Spritzflüssigkeit wurde bei den Verfahren mit demselben, serienmäßigen Sprühgerät „Ab 210“ unter vergleichbaren Bedingungen (Druck, Fahrgeschwindigkeit, Gebläse, Luftstrom) ausgebracht. Die Düsengröße bzw. mittlere Tropfengröße wurde entsprechend den Verfahren zugleich von etwa 120 µm auf 10 µm herabgesetzt. Die durchschnittlich erzielte Belagsmasse an den Blattoberseiten ist bei normalen Sprühverfahren größer, diejenige an den Blattunterseiten etwas kleiner als beim Feinsprühverfahren. Der durch Wertzahlen definierte Bedeckungsgrad ist für beide Verfahren nahezu gleich, die Bodendrift überraschenderweise hoch. Die Luftgeschwindigkeiten an den Zielflächen — Messungen beim Stillstand des Gerätes — sind unabhängig von der Drehrichtung der Gebläseflügel und betragen etwa 6 bzw. 5 m/s.

E. Moser (Stuttgart)

TSVETKOV, V.: Mechanical grape harvesting and the quality of the white wines of the cv. Rkatsiteli · Les vendanges mécanisées et la qualité des vins blancs du cépage Rkatsiteli (bulg. m. russ., franz. Zus.)

Gradinar. Lozar. Nauka (Sofia) **18** (4), 80—86 (1981)

Inst. Lozar. Vinar., Pleven, Bulgarien

The mechanical grape harvest (vibration system) of the cvs. Riesling and Rkatsiteli was determined through the degree of wine quality. It turned out that the amount of rachises was considerably lower compared to that of hand-harvested grapes. The content of sugar decreased, but the content of acidity increased. An increase in the content of tannins, extract and iron could be established.

J. Blaha (Brno)

K. BETRIEBSWIRTSCHAFT

BERGWEILER, P. H.: Die Konzentration im Weinhandel, dargestellt an der Struktur des rheinland-pfälzischen Weinhandels · The concentration in the wine trade as presented by its structure in Rhineland-Palatinate

Diss. Univ. Trier, 256 S. (1981)

Verf. stellt die Konzentration des rheinland-pfälzischen Weinhandels dar. In 100 rheinland-pfälzischen Weinhandlungen wird die Konzentration anhand der Indikatoren Umsatz, Anzahl der Mitarbeiter und Weinverkauf 1976 herausgestellt. Der Konzentrationskoeffizient weist einen beachtlichen absoluten Konzentrationszustand auf; aber auch die relative Konzentration ist hoch. Die staatlichen und innerbetrieblichen Gründe für die Unternehmenskonzentration werden besprochen; im rheinland-pfälzischen Weinhandel liegen sie in verschärfter Konkurrenzsituation, in der Entwicklung von Beschaffungsmarktpolitik, technischem Fortschritt, mengenmäßigem Verkauf (und seiner Aufschlüsselung), aber auch in den Verkaufspreisen, den Absatzformen sowie in der Gemeinschafts- und Einzelwerbung, die ausführlich geschildert und tabellarisch ausgewiesen sind.

F. Schnekenburger (Freiburg)

COUFFIN, C.: Établissement des frais de culture de la vigne. Méthodologie internationale uniformisée · Feststellung der Kosten im Weinbau. Vereinheitlichte internationale Methodologie

Bull. OIV 55, 395—407 (1982)

Lab. Inform. Écon. Financ., Ecole Sup. Agricult., Purpan-Toulouse, Frankreich

Verf. ist bestrebt, ungeachtet der regionalen und produktionstechnischen internationalen Differenzen eine vereinheitlichte Kostenrechnung anzuwenden. Die Kosteneinteilung für Betriebsmittel, Rebenanlagen, Zugmaschinen, Treibstoffe, Transport und Verwaltung werden dargestellt. Gesondert werden zum einen die Arbeits- und Sozialkosten, die Steuern und Abgaben sowie die Zinskosten angeführt, zum anderen die Kosten der Pflanzung und ihrer Einrichtung und Ausstattung sowie deren Abschreibung. Die Kostenberechnung (Schätzung) im Weinbau umfaßt die Materialien nach ihrer Lagerfähigkeit. Die Preisfestsetzung wird nach 4 Methoden mit zeitlichem Unterschied vorgestellt. Die Berücksichtigung der Preissteigerung in Ländern mit steigenden Inflationsraten wird erwähnt.

F. Schnekenburger (Freiburg)

KALINKE, H.: Auswirkungen der Konzentration des Weinhandels · Effects of the concentration in wine trade

Weinwirtsch. (Neustadt/Weinstr.) 118, 493—497 (1982)

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

Wie die gesamte deutsche Weinwirtschaft wurde auch der Weinhandel in den letzten Jahrzehnten einem großen Strukturwandel unterworfen. Die Zahl der Weingroßhandelsunternehmen mit eigener Weinerzeugung hat sich in der Bundesrepublik seit 1965 um knapp 44 % verringert, die von diesen Betrieben erzeugte Weinmenge (aus eigenem Lesegut und Zukauf) stieg demgegenüber um 267 % an. Die Zahl der Großhandelsbetriebe mit Trinkweinbeständen hat sich von 7785 Betrieben im Jahr 1966 auf 3667 Betriebe im Jahr 1980 annähernd halbiert. Dies trifft auch für die Betriebe mit Schwerpunkt Weinhandel zu, deren Zahl sich im gleichen Zeitraum von 6011 auf 3153 verringerte. Nach den Erhebungen für die Umsatzsteuerstatistik ergibt sich bei den Unternehmen des Wein- und Spirituosengroßhandels im Zeitraum von 1950 bis 1978 eine Reduzierung der Zahl der Betriebe von 7000 auf 2700 und eine Umsatzerhöhung von 1 Mrd. auf 5,8 Mrd. DM. In einer Übersicht werden auch Ergebnisse einer Untersuchung über „Die Konzentration im Weinhandel, dargestellt an der Struktur des rheinland-pfälzischen Weinhandels“, von P. BERGWEILER (vgl. *Vitis* 21, 382, 1982), aufgeführt. Neben Umsatzgrößen werden Aussagen getroffen über Arbeitskräftebesatz, Werbeaufwand und Absatzwege der untersuchten 100 Betriebe. Schließlich werden die Folgen des Konzentrationsprozesses sowohl für die Weinbaubetriebe als auch für den Weinhandel und die Winzer-genossenschaften dargestellt.

W. Back (Neustadt)

KALINKE, H.: Konzentration beim Weinhandel — Folgen für Weinbau und Winzergenossenschaften · Concentration in wine trade — Consequences for viticulture and winegrowers' co-operatives

Dt. Weinbau 37, 699—704 (1982)

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

In der gesamten Weinwirtschaft sind betriebliche Konzentrationen feststellbar. So werden zum Beispiel selbständige Betriebe aufgestockt, indem kleinere Unternehmen übernommen, Winzergenossenschaften zu Gebiets- oder Zentralkellereien zusammengefaßt und Handelsunternehmen zu größeren Unternehmensgruppen mit verstärktem Vertreterstab konzentriert werden. — Während Genossenschaften und Selbstmarkter ortgebunden sind und viele Investitionen zur Erhöhung der Lagerkapazität notwendig haben, ist der Handel flexibler und weniger durch Investitionen belastet. Er hat durchweg einen schnelleren Umschlag, eine maximale Auslastung vorhandener Kapazitäten und kann dadurch meist kostengünstiger arbeiten. Zwar fehlt ihm der intensive Kundenkontakt, dafür hat er aber die Möglichkeit, im Bedarfsfall auf andere Weinbaugebiete oder Auslandsweine auszuweichen. Aufgrund des Marktstrukturgesetzes von 1969 wird er bei Gründung von Erzeugergemeinschaften gleichermaßen subventioniert wie Großgenossenschaften, ohne eine marktregulierende Aufgabe wahrnehmen zu müssen.

Th. Becker (Deidesheim)

NEISS, K.: Folgen der strukturellen Veränderungen der Unternehmen des Lebensmittelhandels für Weinbau und Winzergenossenschaften · Consequences of structural changes in enterprises of food trade for viticulture and winegrowers' co-operatives

Dt. Weinbau 37, 689—698 (1982)

Der Lebensmittelhandel geht zahlenmäßig zurück und konzentriert sich immer mehr in großen Unternehmen. 55 % des gesamten Weinabsatzes in der BRD wird über den Lebensmittelhandel getätigt, wobei 86 % des Auslandsweinabsatzes und 40 % des deutschen Weinabsatzes eingeschlossen sind. Die großen Verbrauchermärkte und Lebensmittelfilialbetriebe gestatten dabei eine gute Präsentation des Angebots, was dem Konsumenten Vergleiche ermöglicht. Bei den Discountläden und SB-Geschäften sind die Angebote etwas begrenzter bzw. lokal orientiert. Der Lebensmittelhandel gilt als größter und bedeutendster Abnehmer für den Weinbau, insbesondere für die Winzergenossenschaften.

Th. Becker (Deidesheim)

SCHNEKENBURGER, F.: Traminer, Gewürztraminer und Muskateller aus betriebswirtschaftlicher Sicht · Traminer, Gewürztraminer and muscatel from an economical point of view

Bad. Winzer (5), 219—220 (1982)

Staatl. Weinbauinst., Freiburg/Br.

Mit den genannten 3 Sorten verbindet sich unwillkürlich die Vorstellung exquisiter Qualität. Tatsächlich nehmen sie nur 2 % der badischen Weinbaufläche ein, wengleich bei den Weinprämierungen auf Landes- und Bundesebene auf sie 18 % der Medaillen entfallen. Dies ist zweifellos ein Maßstab der möglichen Qualitätsleistungen, wobei aber geringe Flächenerträge und nicht selten Ausfall durch absoluten Fehlherbst einzukalkulieren sind. Nur an besten Standorten gedeihen diese Sorten. Ihre Steigerung in bezug auf Quantität und Qualität bringt kein geringes Risiko und läßt sie nicht kalkulierbar erscheinen. Dies ist ein Grund, weswegen ihr Flächenanteil immer begrenzt bleiben wird, wengleich die Genossenschaften versuchen, durch Zuschläge bis zu 30 % diese exquisiten Sorten besonders zu stützen.

Th. Becker (Deidesheim)

STUMM, G.: Die Tropfbewässerung als Alternative zur Verbesserung des Weinbaus im Steilhang · The drip-irrigation an alternative to the economic improvement of grape growing on steep slopes (m. engl. Zus.)

Wein-Wiss. 37, 161—182 (1982)

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

Verf. geht der Frage nach, inwieweit der Einsatz der Tropfbewässerung zur besseren Rentabilität des traditionellen Steillagenweinbaus beitragen kann. Auf kalkulatorischer Basis werden Anschaffungskosten ermittelt; sie schwanken in den gewählten Modellen zwischen 13 675 und 25 500 DM/ha. Sodann werden Abschreibungs-, Zins- und variable Kosten abgeleitet sowie die durchschnittlichen jährlichen Kosten zusammengestellt, die je ha zwischen 2110 und 2974 DM variieren. Für Wasserkosten müssen zusätzlich 1000 DM veranschlagt werden. Weiterhin sind u. U. noch Kosten für Pumpstation, Einrichtung für Düngemittleinspeisung etc. zu berücksichtigen. Den Kosten stehen evtl. zu erzielende monetäre Mehrerträge gegenüber, die auf Mengensteigerung bzw.

Ertragssicherung sowie Qualitätssteigerung beruhen. Einige Ergebnisse werden zitiert mit der Feststellung, daß objektive und über einen längeren Zeitraum gesicherte Daten zur Qualitäts- und Mengensteigerung in Verbindung mit der Tropfbewässerung noch nicht zur Verfügung stehen. Die bekannten monetären Ertragssteigerungen streuen mit wenigen 100 bis >10 000 DM/ha noch mehr als die Kosten. Nur bei tatsächlichen Trockenstandorten ist mit einer Rentabilität der Tropfbewässerung zu rechnen. — Als Kriterien für die Standortabgrenzung werden die monatlichen Niederschlagsaufzeichnungen der Wetterämter für einige Standorte vorgestellt. Zu späte Bewässerung vermehrt nur die Erntemenge; bei der Festlegung des letztmöglichen Bewässerungstermins muß nach Ansicht des Ref. das Beerenwachstum berücksichtigt werden.

W. Hofäcker (Domäne Niederhausen)

WILLNER, S.: Untersuchungen des Arbeitsaufwandes und der Produktionskosten in Betrieben mit Weinbau im Anbaugebiet Württemberg · Investigations on expenditure of work and production cost in farms with viticulture in Württemberg
Dt. Weinbau **37**, 632—638; 750—754 (1982)

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

Es werden Ergebnisse von Arbeitswirtschafts- und Kostenuntersuchungen in wein-obstbaulichen Gemischtbetrieben Baden-Württembergs aus den Jahren 1966—1979 dargestellt. In diesem Zeitraum verringerte sich der gesamte Arbeitsaufwand in diesen Betrieben von 1552 AKh/ha auf 837 AKh/ha ERF, wobei vor allem die Flurbereinigung einen großen Rationalisierungseffekt brachte. Die Veränderungen bei den einzelnen Arbeiten bzw. Gruppen von Einzelarbeiten lassen sich aus verschiedenen Tabellen ablesen, die Ursachen der Arbeitszeiteinsparungen werden erläutert. Gemeinsam mit der Auswertung der arbeitswirtschaftlichen Daten wurden die durchschnittlichen jährlichen Kosten für die Bewirtschaftung der Ertragsweinberge in DM/ha ermittelt. Im Untersuchungszeitraum stiegen die Vollkosten von 11 347 DM/ha auf 18 524 DM/ha. Eine Aufgliederung in Kostenarten zeigt, daß der stärkste Anstieg bei den Lohnkosten zu verzeichnen war.

W. Back (Neustadt)

L. ÖNOLOGIE

ALLEN, M. S.: Wine processing and its influence on pH — effects of fermentation, fortifications, water contamination and potassium bitartrate precipitation · Die Weinbereitung und ihr Einfluß auf den pH-Wert — Auswirkungen von Gärung, Alkohol- oder Wasserzusatz und Weinsteinbildung

Austral. Grapegrower Winemaker **19** (220), 57—58 (1982)

Through the use of model systems and wines the effect of sugar and alcohol on the apparent pH of tartaric acid and malic acid buffers or of the wines themselves is demonstrated. Authors present quantitative data showing the extent of change brought about by changes in alcohol content, either by addition of alcohol or dilution of alcohol through addition of water. Authors describe the causes responsible for the observed changes. These include changes in dielectric constant and concentrations of the tartrate ions due to potassium bitartrate precipitation. The implications of the data are discussed in relation to the use of tartaric acid addition or hydrogen ion exchange on the observed changes in pH and titratable acidity.

C. W. Nagel (Pullman)

BARNA, J., GRILL, F.: Methode zur Bestimmung des Sulfatgehaltes von Wein · A method for the determination of the sulphate content in wine (m. engl., franz. Zus.)
Mitt. Klosterneuburg **32**, 122—123 (1982)

HBLuVA f. Wein-Obstbau, Klosterneuburg, Österreich

A method for the determination of sulphate in wines that could readily be used for a series of samples was developed. The sulphate was precipitated as BaSO₄ in acid solution after the addition of an excess of BaCl₂. The Ba remaining in solution was determined by atomic absorption spectrometry. The standard curve was linear in the range 1.5 g—2.00 g K₂SO₄ l⁻¹. Provision could easily be made by dilution to accommodate all samples in this range. On a series of 50 replicates the variation coefficient for the method was ± 4.5 %. Full experimental details are given. *D. J. Spedding* (Auckland)

BROWN, M. R., OUGH, C. S.: **Effects of two different pectic enzyme preparations, at several activity levels, on three pectin fractions of a white must** · Wirkungen zweier verschiedener Pektin-Enzym-Präparate bei mehreren Aktivitätsstufen auf 3 Pektinfraktionen eines weißen Mostes

Amer. J. Enol. Viticult. **33**, 41—43 (1982)

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

Uniform must samples from Muscat of Alexandria grapes were treated in duplicate at 5 activity levels of 2 commercial pectic enzyme preparations. Residual pectic substances were examined by fractional extraction before colorimetric analysis (based on use of *m*-hydroxy diphenyl) of the 3 fractions obtained; these vary in degree of methylation and proportions of neutral sugars. Whereas the protopectin and low methoxy fractions decreased with increasing levels of each pectic enzyme, the water-soluble high methoxy fraction showed an initial increase at low enzyme levels before decreasing rapidly at the higher levels of treatment.

T. C. Somers (Adelaide)

CASTINO, M., PIRACCI, A., SPERA, G.: **Proline in "D.O.C." wines: Colli Albani, Frascati, Marino, Velletri, Trebbiano e Merlot d'Aprilia, Cesanese del Piglio, Montepulciano d'Abruzzo, Verdicchio di Jesi** · Prolin in „D.O.C.“-Weinen: Colli Albani, Frascati, Marino, Velletri, Trebbiano e Merlot d'Aprilia, Cesanese del Piglio, Montepulciano d'Abruzzo, Verdicchio di Jesi (ital., engl.)

Vini d'Italia **23**, 345—353 (1981)

Ist. Sper. Enol., Asti, Italien

Proline content was determined for many samples of wines from controlled appellation of origin (D.O.C.) and of common wines, a total of 476 samples. The separate data for white and red wines were statistically examined. Lower proline contents in the common wines than of D.O.C. were attributed to blending of the former with wines from other areas. The red wines were much richer in proline than the white. Highly significant differences were found between vintage years for the same cultivar, and also evidence of corresponding proline variation with vintage for wines of different cultivars. Authors claim that proline concentration of D.O.C. wines can be regarded as a useful indication of authentic origin.

T. C. Somers (Adelaide)

DROZ, C., TANNER, H.: **Über die Trennung und quantitative Bestimmung der organischen Säuren in Fruchtsäften und Weinen mittels HPLC** · The separation and quantitative determination of organic acids in fruit juice and wine by HPLC

Schweiz. Z. Obst- Weinbau **118**, 434—438 (1982)

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

A HPLC method was developed in order to qualitatively separate and quantitatively determine the important acids in fruit juices and wines. This is accomplished by using a cation exchange column (Dowex 50 W × 4, 50—100 mesh) in the H⁺ form to convert the salts to the acid form and remove amino acids. The separation is performed using an ultrasphere ODS-5 (RP-18) column as the stationary phase and a potassium dihydrogen phosphate (0.01 M) : tetrabutylammonium phosphate (5.5 × 10⁻⁴ M) buffer adjusted to pH 2.5 with phosphoric acid as the mobile phase. The quantitation and detection is done using a variable liquid chromatography UV detector at a wave length of 225 nm. The analysis including red wine is completed in 12 min. The method was compared with the enzymatic method for malic, isocitric, and citric acids. Similar results were obtained.

L. Mattick (Geneva)

DUNBAR, J.: **A study of the factors affecting the ¹⁸O/¹⁶O ratio of the water of wine** · Faktoren der Beeinflussung des ¹⁸O/¹⁶O-Verhältnisses des Wassers in Wein (m. dt. Zus.)

Z. Lebensm.-Untersuch. u. -Forsch. **174**, 355—359 (1982)

Chem. Dept., Univ. Waikato, Hamilton, New Zealand

Factors affecting the ¹⁸O/¹⁶O ratio of N. Z. wines were examined to enable the development of methods to detect addition of water. The following results were obtained: ¹⁸O/¹⁶O ratios of different bottles of the same wine showed little variation; mean ¹⁸O/¹⁶O ratios of regional wines showed yearly variations relatable to climatic effects; no differences in ¹⁸O/¹⁶O ratios were observed between red and white wines produced in the same region and year; differences were found in ¹⁸O/¹⁶O ratios of

wines from different regions; the variation in $^{18}\text{O}/^{16}\text{O}$ ratio between ground waters in the wine producing areas was small (2 %); the dilution of grape juice with water altered the isotope ratio of the resultant wine; freeze-concentration of grape juice led to a depletion in ^{18}O in the resultant wine.

R. F. Simpson (Glen Osmond)

FAMUYIWA, O., OUGH, C. S.: **Grape pomace: Possibilities as animal feed** · Traubentrester: Verwendungsmöglichkeiten als Tierfutter

Amer. J. Enol. Viticult. **33**, 44—46 (1982)

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

A study was undertaken to determine the digestibility *in vitro* of several grape pomace varieties using rumen fluid from cows, sheep and goats. There was little difference in digestibility between the various rumen fluids, with the Cabernet Sauvignon pomace having the highest digestibility (38.6 %) and Tinta Madeira the lowest (25.9 %). The value for Cabernet Sauvignon was comparable to that for barley straw. Lowest digestibility corresponded to highest total phenol content of the pomace. High tannin contents also lowered digestibility. Water extraction lowered the digestibility of pomaces by extracting about 60 % of the readily available nutrients and 20 % of the dry matter. The potential of grape pomace as an animal feed was discussed.

D. J. Spedding (Auckland)

GNAEGI, F.: **La désacidification des vins** · The deacidification of wines (m. dt., ital., engl. Zus.)

Rev. Suisse Viticult. Arboricult. Hort. (Changins) **14**, 147—154 (1982)

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

Following the definition of acidity in wine and how it is determined, Author discusses the deacidification of wines by physical, biological and chemical procedures. Control of malo-lactic fermentation by inoculation with pure viable cultures of *Leuconostoc* sp. has been achieved. In case of failure, the possibility of infection with bacteriophages must be considered. Various methods of chemical deacidification are described. The effect of calcium carbonate and potassium bicarbonate on the content of Ca in wine is discussed.

C. L. Duitschaever (Guelph)

OLIVIERI, CH., SALGUES, M.: **Note sur les jus de raisins concentrés: désulfitation — concentration et couleur** · Note on grape juice concentrates: desulphiting — concentration and colour

Progr. Agric. Vitic. (Montpellier) **99** (8), 205—209 (1982)

Chaire Technol. Oenol., Ecole Natl. Sup. Agron., Montpellier, Frankreich

SO₂-preserved red grape juice was desulphited and concentrated (to 62 °Brix) at constant temperatures of 60, 70 and 80 °C. The concentrates were stored at 8 and 18 °C for up to 8 months, during which time the colour densities and colour composition of respective reconstituted juices were examined. Concentrates obtained by treatment at 70 and 80 °C contained less residual SO₂, and reconstituted juices had more colour than from treatment at 60 °C. Storage of the concentrates at 18 °C led to much greater colour loss than at 8 °C, with rapid decline during the first 4 months. For best results, Authors recommend that desulphiting-concentration should begin at 80—90 °C, with completion at 60—70 °C. Concentrates should be prepared as required at 2—3-months intervals, cooled rapidly, and stored at temperatures below 10 °C.

T. C. Somers (Adelaide)

POMPEI, C.: **Le sucre de raisin. Aspects technologiques (production et utilisation)** · Grape sugar. Technological aspects (production and utilization)

Bull. OIV **55**, 25—52 (1982)

Ist. Technol. Aliment., Univ. Mailand, Italien

Author describes the different operations involved in the production of grape sugar syrup (defined as rectified concentrated must by the E.E.C.). Clarification of the must requires: defecation with Ca(OH)₂, recovery of tartrates by addition of CaCO₃, decolorizing with charcoal, removal of SO₂ and pre-concentration of the must. Clarification is carried out in order to facilitate rectification of the must using ion-exchange resins. The clarified must is treated in sequence with a cationic, an anionic and again with a cationic resin. The product obtained is a clear, uncolored or yellowish liquid, containing glucose and fructose in the same proportion as in the original must, and traces of other constituents. This liquid is then concentrated in a falling film, multi-stage plate evaporator

functioning under vacuum at low boiling temperatures, to produce grape sugar syrup of approximately 68—70 ° Brix.
C. Buteau (Guelph)

PRŮŠA, K., SMEJKAL, O.: **Einfache Methode zur Bestimmung der Weinsteinstabilität im Wein** · Simple method of determining tartar stability in wine (tschech.)
Vinohrad (Bratislava) **20**, 16—18 (1982)

Eine einfache Methode zur Bestimmung der Weinsteinstabilität, die auf dem Minikontaktverfahren nach MÜLLER und WÜRDIG zur Prüfung der Weinsteinstabilität beruht, wurde getestet. Durch abgestufte Weinsteinosierung und Temperieren des Weines auf 5 °C während 3—5 d wird ein verlässliches Bild über die Weinsteinstabilität der Weine im Großbetrieb gewonnen. Die Bestimmung der Stabilitätstemperatur mit einer Genauigkeit von ±1 °C ist für Weinproduktionszwecke als völlig ausreichend zu betrachten. Falls der getestete Wein bei der berechneten Temperatur von -1 bis -2 °C keine Kristallausscheidungen aufweist, kann mit einer ausreichenden Weinsteinstabilität gerechnet werden. Ergebnisse mit 10 verschiedenen Weinen werden ausführlich tabellarisch dargestellt und diskutiert.
E. Minárik (Bratislava)

RIDOMI, A., PEZZA, L.: **Acidimetric estimation of must involving indirect malic-acid determination** · Säuremessung im Most mit indirekter Äpfelsäurebestimmung (ital. m. engl., franz. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 3—12 (1982)
Ist. Sper. Viticolt., Conegliano, Italien

An equation involving total titratable acidity, pH and total tartrates (by a modification of the VIDAL and BLOUIN metavanadate procedure) permitting estimation of total malate is derived. — Total malate = [titratable acid - 0.5 - (tartrates × % H₂T × .01) - (tartrates × % HT⁻ × .005)] × 89.33 × [% H₂M + % HM⁻ × .5]⁻¹. — A table relating percentages of the different forms of tartrate and malate with pH is given. The method is recommended for quick approximations only.

A. D. Webb (Davis)

SHIMIZU, J., WATANABE, M.: **Neutral volatile components in wines of Koshu and Zenkoji grapes** · Neutrale Aromastoffe in Weinen von Koshu- und Zenkojitrauben
Agricult. Biol. Chem. (Tokyo) **45**, 2797—2803 (1981)

Dichloromethane extractable volatiles from Koshu and Zenkoshi grapes (*Vitis vinifera orientalis*) were isolated and identified using combined gas chromatography-mass spectrometry. Among the 39 volatiles detected in these wines, one compound, 2-methoxy-5-vinylphenol, was reported detected in wine for the first time.
T. E. Acree (Geneva)

SHINOHARA, T., SHIMIZU, J.: **Formation of ethyl esters of main organic acids during aging of wine and indications of aging** · Bildung von Äthylestern der wichtigsten organischen Säuren während der Weinalterung (japan. m. engl. Zus.)
Nippon Nôgeikagaku Kaishi **55**, 679—687 (1981)

Formation of ethyl esters of acetic, lactic, succinic, malic, and tartaric acid was compared using gas chromatography in table wines and in a model solution of ethanol (EtOH) and the acids during storage at different conditions (EtOH 5—80 v/v %, pH 2.6—4.5, 5—30 °C) for 12 months. The stronger esterification of the acids was found at higher EtOH concentration, lower pH, and higher temperature, however, the effects of these factors were higher in the case of dibasic acids than of monobasic acids. Since the estimated values for activation energy and Q₁₀ of esterification at 5—30 °C were 3.8—19.8 kcal/mol and 1.2—3.1, respectively, the ester formation in wine was considered to be chemical reaction. A high correlation coefficient of r=0.884 (white wine), r=0.868 (red wine), between storage periods (1—20 years) and the ratio of diethylsuccinate to monoethylsuccinate was observed, and the ratio was regarded as an indication of storage years (degree of aging).

I. Ohara (Yamanashi)

SHINOHARA, T., WATANABE, M.: **Gas chromatographic analysis of volatile esters in wines** · Gaschromatographische Analyse von flüchtigen Estern in Weinen
Agricult. Biol. Chem. (Tokyo) **45**, 2903—2905 (1981)

This paper describes a gas chromatographic method for the analysis of certain esters in wines. A 10 ml sample containing butyl and octyl alcohols as an internal standard was extracted with 1.5 ml

of pentane and gas-chromatographed on 15 % PEG-600 to determine ethyl hexanoate and 15 PEG-1000 to determine ethyl octanoate, ethyl decanoate, pentyl acetate, hexyl acetate and diethyl succinate. A 5 ml sample containing 3-phenylpropyl alcohol was extracted with ethyl acetate-N-pentane (2 : 1 v/v) and chromatographed on 10 % EGSP (ethylene glycol succinate polyester) to determine 2-phenylethyl acetate. 8fold analysis of wine showed coefficients of variation from 6 to 16 %.

T. E. Acree (Geneva)

SOMERS, T. C., WESCOMBE, L. G.: **Red wine quality: The critical role of SO₂ during vinification and conservation** · Rotweinqualität: Die entscheidende Rolle von SO₂ während der Weinbereitung und Konservierung

Austral. Grapegrower Winemaker **19** (220), 68—74 (1982)

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

Authors present a thoughtful and profound review of fundamental aspects of red wine making in Australia based upon many years' experience and recent data acquired during a comprehensive survey of wines of the 1979-80-81 vintages. Control of pH and the proper systematic use of SO₂ in amount and timing are central features determining quality. The primary function of SO₂ is to bind free acetaldehyde and provide minimal free SO₂ of 0.5—1.0 mg/l (spectral) or 10—15 mg/l (aspiration). A detailed procedure for making premium quality red wines is recommended.

C. F. Timberlake (Long Ashton)

SPONHOLZ, W.-R.: **Analyse und Vorkommen von Aldehyden in Weinen** · Analysis and occurrence of aldehydes in wines

Z. Lebensm.-Untersuch. u. Forsch. **174**, 458—462 (1982)

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

A method of determining aldehydes in wines is described. Volatiles from wines (adjusted to pH 8) were distilled into acidified 2,4-dinitrophenylhydrazine. The precipitate was mixed with 2-ketoglutaric acid, injected into a gas chromatograph and the liberated aldehydes were measured. German wines (17) examined averaged 29 mg ethanal/l and contained small amounts of higher saturated and unsaturated aldehydes. Wines spoiled by lactic acid bacteria contained less ethanal, but increased quantities of higher aldehydes.

C. F. Timberlake (Long Ashton)

SCHLOTTER, H. A.: **Modifications défavorables de vins consécutives à l'introduction de certaines technologies modernes** · Unwanted changes in wines following the introduction of some modern technologies

Bull. OIV **55**, 484—497 (1982)

LLVA f. Wein- Gartenbau u. Landwirtschaft., Bad Kreuznach

Author reports on 2 major problems facing the German wine industry: extensive deacidification of musts which adversely affects the sensory attributes of the wines and excessive addition of sorbic acid in wines used for blending with subsequent difficulty of exportation of such polluted wines to countries such as Japan, Austria and Switzerland.

C. Buteau (Guelph)

SCHLOTTER, H. A.: **Zur Problematik starker Entsäuerungen** · Problems incurred with the excessive reduction of acidity

Dt. Weinbau **37**, 482—485 (1982)

LLVA f. Wein- Gartenbau u. Landwirtschaft., Bad Kreuznach

Deacidification of large concentrations of acid in wine results in an unavoidable increase in pH. This is due to the increase in the cations of the Ca and other salts used to reduce the acid. The increase in pH to high values may have a negative influence on the taste of the wine. High pH values tend to give a "bland" taste to the wine which detracts from the fruity taste characteristic of the wine.

L. Mattick (Geneva)

TANNER, H., ZANIER, C., WÜRDIG, G.: **Zur analytischen Differenzierung von Muffton und Korkgeschmack** · Concerning the analytical discrimination of mustiness and corkiness

Weinwirtsch. (Neustadt/Weinstr.) **118**, 15—16 (1982)

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

2 analytical methods (HPLC, GC) are described to determine 2,3,4,6-tetra- and pentachlorophenol in wines. Authors show that impregnation reagents which contain tetra- and pentachlorophenol may cause mustiness in wines by microbiological formation of 2,3,4,6-tetra- and pentachloroanisole. The tetra- and pentachloroanisole contents (GC, MS) in wines contaminated with impregnation reagents were $4-11 \cdot 10^{-9}$ g/l (4—11 ppt) and 5—12 ppt. The sensorial threshold of tetrachloroanisole was found to be very low (about 5 ppt). Trichloroanisole, which causes the real corkiness, was not present (<1 ppt) in these wines. W. Flak (Wien)

WEGER, B.: **Untersuchungen über die Metaweinsäure. Qualität und stabilisierende Wirkung unter den Bedingungen der Praxis** · Investigations on meta-tartaric acid. Quality and stabilizing effect under practical conditions

Wein-Wiss. **37**, 193—207 (1982)

Thorough studies on the estimation of the quality of different commercial meta-tartaric acids (MTA) showed no remarkable differences between 4 investigated products. Studies on the detection of MTA proved that the presence of MTA in wine can only be found out by checking the cold stability. The stabilizing effect of MTA lasts for at least 2 years; thus, it lasts much longer than so far supposed. The heat stability of MTA in neutral and acid solutions is considerable; hot-filling of wine has no influence on the stability. In general, the precipitation of calcium tartrate up to 150 mg Ca/l and potassium hydrogen tartrate up to more than 1000 mg K/l is prevented.

W. Postel (Weihenstephan)

M. MIKROBIOLOGIE

BENDA, I.: **Reinzuchthefen in der Kellerwirtschaft** · Pure culture yeasts in cellar management

Weinwirtsch. (Neustadt/Weinstr.) **118**, 700—705 (1982)

Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

A series of laboratory and practical experiments were carried out on fermentations with natural yeast population, and preparations of pure culture yeast in liquid and dried form both at 15 and 10 °C. Effects on analytically important wine components and on organoleptic properties were determined. The difficulties associated with spontaneous fermentations were clearly shown. No significant difference was found in any mode of testing of wines produced from the same pure culture yeast in liquid or dried form. Problems of the selection of a tasting panel was commented upon. It was concluded that the selection of appropriate yeast strains for fermentation was of great practical importance. D. J. Spedding (Auckland)

BUREAU, G., BRUN, O., VIGUES, A., MAUJEAN, A., VESSELLE, G., FEUILLAT, M.: **Étude d'une microflore levurienne champenoise** · A study of champagne yeast microflora (m. engl., dt., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) **16**, 15—32 (1982)

Lab. Oenol., Fac. Sci., Dijon, Frankreich

A 4-year-study, commencing in 1977, was conducted to examine champagne yeast microflora. Populations were enumerated in the vineyard during berry maturation, in the winery during grape processing and during alcoholic fermentation. The effect of different vineyard fungicide treatments in wildyeast population is examined. — It is concluded that different treatments to affect the yeast population during the course of winemaking. Authors describe a selective medium for differentiating *Saccharomyces cerevisiae* and *S. bayanus* colonies. R. R. Nelson (Winona)

CIOLFI, G.: **Die sporenbildenden Hefen auf Trauben aus Piemont bei der Lese** · Sporiferous yeasts present on grapes in Piedmont at vintage time (m. franz., engl. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 80—97 (1982)

Ist. Sper. Enol., Asti, Italien

Nach Beschreibung der Entnahme der Trauben, der Züchtung und Selektion der Hefen, kommt Verf. zu folgenden Ergebnissen: Im Schnitt sind 27 % der auf den Trauben des Piemont vorkom-

menden Hefen sporenbildend. Im einzelnen werden nachstehende Zahlen genannt: *Saccharomyces cerevisiae* 79,3 %, *S. chevalieri* 9,1 %, *S. bayanus* 6,2 %, *S. uvarum* 4,6 % und *Endomycopsis bispora* 1,2 %. Gutes Alkoholbildungsvermögen wird bei *S. cerevisiae*, bei *S. chevalieri* und bei *S. bayanus* festgestellt, das jedoch mit hoher Bildung von flüchtiger Säure einhergeht. Geringes Alkoholbildungsvermögen zeigt *S. uvarum*.
B. Weger (Bozen)

DITTRICH, H. H.: **Effects of microorganisms on fruit juices** · Veränderungen von Fruchtsäften durch Mikroorganismen (m. franz. Zus.)

Flüss. Obst (Bad Homburg) 49, 312—315 (1982)

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

Contaminations of fruit juices and subsequent changes of their composition are generally attributable to a few specific microorganisms, like yeasts, moulds, lactic and acetic acid bacteria and in rare cases clostridia. The most significant analytical and sensory changes are discussed. Despite widely varying concentrations their presence can indicate the degree of contamination and not automatically adulterations.
R. Eschenbruch (Te Kauwhata)

FEUILLAT, M., CHARPENTIER, C.: **Autolysis of yeasts in champagne** · Autolyse von Hefen in Champagner

Amer. J. Enol. Viticult. 33, 6—13 (1982)

Lab. Oenol., Fac. Sci., Univ. Dijon, Frankreich

The amino acid content of champagne aged on yeast increased by 12 % in 6 months, 24.5 % in 12 months and 25.6 % in 4 years, indicating that most autolysis occurred during the first year of storage. Greatest yeast proteolytic activity was observed after 9 months of aging. In studies with rehydrated active dry yeast, more nitrogen was released in wine than in a pH 5 buffer indicating that alcohol and a low pH do not inhibit autolysis. Fastest release of nitrogen occurred at 55 °C but greater quantities were released at 36 and 44 °C over an extended time period because of yeast protease activity.
D. Splittstoesser (Geneva)

MINÁRIK, E., HANICOVÁ, A.: **Die Hefeflora konzentrierter Traubenmoste und deren Einfluß auf die Stabilität der Weine** · The yeast flora of concentrated grape juices and its influence on wine stability (m. engl. Zus.)

Wein-Wiss. 37, 187—192 (1982)

Forschungsinst. Weinbau Kellerwirtsch., Bratislava, CSSR

In der Hefeflora eingedickter Traubenmoste überwiegen die osmophilen Hefenarten *Saccharomyces bailii* und *Torulopsis stellata*. Beide sind für die Stabilität der Weine äußerst gefährlich, zumal sie gegen die herkömmlichen Weinstabilisierungsmittel, SO₂ und Sorbinsäure, recht widerstandsfähig sind.
E. Lück (Frankfurt)

OKAMURA, S., WATANABE, M.: **Formation of β -phenethyl alcohol, tyrosol and tryptophol from some sugars by *Saccharomyces cerevisiae*** · Bildung von 2-Phenyläthanol, Tyrosol und Tryptophol aus verschiedenen Zuckern durch *Saccharomyces cerevisiae* (japan. m. engl. Zus.)

J. Brew. Soc. Japan. 76, 629—634 (1981)

A flavor substance, 2-phenylethanol (PE), and 2 bitter substances, tyrosol (Ty) and tryptophol (Tr), were isolated by silica gel column chromatography and identified separately in an ether extract of a synthetic medium containing glucose as sole carbon source and no aromatic amino acid, after shake cultivation of a wine yeast for 9 d at 30 °C. The formation of these alcohols from fructose and sucrose was also shown in the culture liquids of 3 yeast strains. It was found that the amount of Tr (0.5—1.7 mg/l) formed was smaller than those of PE (11.2—51.8 mg/l) and Ty (7.5—34.0 mg/l) determined by gas chromatography. However, the amount of PE and Ty, formed in the glucose and fructose media, were greater than those in the sucrose medium. Content of phenylalanine (Phe, 2.9—8.2 mg/l), tyrosine (Tyr, 1.5—3.5 mg/l) and tryptophan (trace) were determined by an amino acid autoanalyzer in the fructose medium. The presence of these yeast metabolic products suggested that PE and Ty are certainly derived from deamination of Phe and Tyr, respectively.

I. Ohara (Yamanashi)

PAN, CH. S., LEE, T. H., FLEET, G. H.: **A comparison of five media for the isolation of lactic acid bacteria from wines** · Comparaison de cinq milieux de culture pour l'isolation de bactéries lactiques dans les vins

Austral. Grapegrower Winemaker **19** (220), 42—46 (1982)

Several different species of lactic acid bacteria (LAB) are important contributors to the sensory quality of wines. This report examines the LAB population of 70 wines, red and white, produced 1974—1979. *Pediococcus pentosaceus* was the most frequently isolated organism. 5 different culture media were compared and it is suggested that no single agar is suitable for complete LAB population enumeration. For routine isolation of LAB, the simultaneous use of tomato juice agar, Irrmann's agar and modified Rogosa Sharpe agar is proposed. *R. R. Nelson* (Winona)

POULARD, A., BRELET, M., ROUSSET, Y. BERTRAND, A.: **Influence du facteur thermique sur les fermentations et la typicité des vins blancs secs du pays nantais** · Influence of temperature on the fermentation and typical features of dry white wines from the region of Nantes

Vignes et Vins (Paris) **(307)**, 29—34 (1982)

Inst. Oenol. (INRA), Univ. Bordeaux II; Talence, Frankreich

Grape musts from this French region have been fermented under 3 different temperature conditions (12—14 °C, 18—20 °C and 26—28 °C) to study their influence on the wine quality. The chemical, microbiological and organoleptical analyses show the best quality in the wines fermented at 18—20 °C. Authors recommend this temperature for winemaking; at the same time, this temperature is easier and cheaper to reach and to maintain than the two others. *V. Arroyo* (Madrid)

RADLER, F., SCHÜTZ, H.: **Glycerol production of various strains of *Saccharomyces*** · Glycerinerzeugung durch verschiedene *Saccharomyces*-Stämme

Amer. J. Enol. Viticult. **33**, 35—40 (1982)

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

Glycerol production by 23 strains of *Saccharomyces cerevisiae* ranged from 4.2 to 10.4 g/l. Grape must gave higher yields than did synthetic B-medium or a yeast extract-peptone-glucose broth. Increasing the inoculum from 10^6 to 10^8 cells/ml raised glycerol production as did shaking under anaerobic conditions. Omission of thiamin from medium B reduced glycerol by $\frac{1}{3}$ but did not affect cell yield. The use of alanine, asparagine, serine or valine as the sole nitrogen source reduced glycerol yields. High and low glycerol-producing strains had similar alcohol dehydrogenase activity, but the high producers had greater glycerol-3-phosphate dehydrogenase activity. It is postulated that the 2 enzymes compete for the reduced coenzyme $NADH_2$. *D. Splittstoesser* (Geneva)

RIZVANOV, K., BAMBALOV, G., RIZVANOVA, V.: **Der Einfluß einiger Pestizide auf die Weinhefen und die Alkoholgärung** · Influence of several pesticides on wine yeasts and alcoholic fermentation (bulg.)

Lozar. Vinar. (Sofia) **30** (7), 21—24 (1981)

Vissh Selskostop. Inst. „V. Kolarov“, Plovdiv, Bulgarien

Mittels biochemischer und gaschromatographischer Methoden wurde der Einfluß von Fungiziden, Herbiziden, Insektiziden und Wuchsstoffen auf Hefen, Gärung, Aromastoffe und Rückstände im Wein untersucht. Die Wirkung der Substanzen zeigte sich abhängig von der chemischen Natur des Präparates sowie vom Enzymsystem der Hefezelle. Die Gärverzögerung war dementsprechend unterschiedlich. Die nur unwesentlichen Veränderungen der Aromastoffe äußerten sich hauptsächlich durch quantitative Verminderung der Äthylester der niederen Fettsäuren. Die Pestizide wurden zum größten Teil in den Hefezellen angereichert und somit bei Klärung und Filtrierung des Weines ausgeschieden. *N. Goranov* (Sofia)

ROSINI, G.: **Einfluß der *Saccharomyces*-Flora des Kellers auf die Gärung des Traubenmostes** · Sur l'influence des *Saccharomyces* de la cave sur la fermentation de moûts de raisin (ital. m. franz. Zus.)

Vignevisini (Bologna) **9** (3), 43—46 (1982)

Ist. Microbiol. Agrar. Tec., Univ. Perugia, Italien

Die in einem neuerbauten Keller durchgeführten Versuche ergeben, daß bei Spontangärung *Klök-ker* *apiculata* in großen Mengen vorhanden ist, während nach Zusatz von *S. cerevisiae* die Gärung einzig und allein auf diese Hefe zurückzuführen ist. Die Hefe kann in den Kellerräumen bis zum nächsten Herbst vital bleiben, auch wenn ihre Zahl z. B. bei gefliesten Wänden, Stahlbehältern, während des Sommers wesentlich abnimmt. Verf. schließt, daß die Gärung in erster Linie durch die Hefeflora des Kellers, nicht aber durch diejenige der Trauben bewirkt wird. *B. Weger* (Bozen)

SOZZI, T., GNAEGI, F., AMICO, N. D', HOSE, H.: **Difficultés de fermentation malolactique du vin dues à des bactériophages de *Leuconostoc oenos*** · Problems with the malo-lactic fermentation of wine due to bacteriophages of *Leuconostoc oenos* (m. engl., dt., ital. Zus.)

Rev. Suisse Viticult. Arboricult. Hort. (Changins) **14**, 17—23 (1982)
Sta. Féd. Rech. Agron. Changins, Nyon, Schweiz

2 types of bacteriophage capable of destroying different strains of *Leuconostoc oenos* normally involved in the malo-lactic fermentation of wines have been isolated and their morphology described for the 1st time. The discovery of the occurrence of bacteriophages in wines may provide an explanation for the often observed and unexplained phenomenon of interrupted and incomplete malo-lactic fermentation. The demonstration of the action of phages in wine may provide a stimulus for further studies on the control of this biological deacidification. The use of pure cultures in rotation may be the technique to be recommended. *C. L. Duitschaever* (Guelph)

SPETTOLI, P., BOTTACIN, A., NUTI, M. P., ZAMORANI, A.: **Immobilization of *Leuconostoc oenos* ML 34 in calcium alginate gels and its application to wine technology** · Immobilisierung von *Leuconostoc oenos* ML 34 in Calcium-alginat-Gelen und seine Anwendung in der Weintechnologie

Amer. J. Enol. Viticult. **33**, 1—5 (1982)
Ist. Chim. Agrar. Ind. Agrar., Univ. Padova, Italien

A comparison was made of the properties of *Leuconostoc oenos* ML 34 cells immobilised in calcium alginate gels in model solution and in 2 Italian red table wines. The basic test was the ability to convert L-malic acid to L-lactic acid. In standard solution the pH optimum for L-lactic acid formation was pH 4.0, while an ethanol concentration of 15% (v/v) was similarly optimum. L-lactic acid production rate was linear with time for at least 9 h, and had decreased to 60% of its higher value after 36 d. In Barbera wine the immobilised *L. oenos* reduced the malic acid concentration from 4.30 g l⁻¹ to 0 in 3 d. With Raboso wine malic acid concentration dropped from 1.50 g l⁻¹ to 0.81 g l⁻¹ in 16 h. The entrapped *L. oenos* ML 34 may thus be used for L-malic acid decarboxylation in wine.

D. J. Spedding (Auckland)

WENZEL, K., DITTRICH, H., PIETONKA, B.: **Untersuchungen zur Beteiligung von Hefen am Äpfelsäureabbau bei der Weinbereitung** · Investigations into the participation of yeasts in malic acid decomposition in wine preparation (m. engl. Zus.)

Wein-Wiss. **37**, 133—138 (1982)
Inst. Mikrobiol. Biochem., FA f. Weinbau Gartenbau Getränketechnol. Landespflege, Geisenheim

The decline in malic acid content during the preparation of wines was investigated by measuring L-malic acid, L-lactic acid and D-lactic acid contents in the completed wine. When L-lactic acid values were below 100 mg · l⁻¹ it was assumed that malic acid decomposition was by yeast metabolism, while higher values indicated an additional involvement of bacterial metabolism. Musts of the 1980 vintage in laboratory tests with pure culture yeasts metabolised 18.5—23.5% of the malic acid. Yeasts decomposed 10—32% of the malic acid in 50 wines from 16 German wineries. Only 4 wines, 2 white and 2 red, showed additional malic acid decomposition by bacteria. The decomposition of malic acid in musts was apparently independent of the strain of yeast used.

D. J. Spedding (Auckland)