

DOKUMENTATION
DER
WEINBAUFORSCHUNG

A. ALLGEMEINES

EVANGELOU, S.: **Strukturanalyse der griechischen Weinwirtschaft unter besonderer Berücksichtigung der Auswirkungen des Beitritts Griechenlands zur Europäischen Gemeinschaft für den Weinmarkt der Bundesrepublik Deutschland** · Structure analysis of viticulture and enology in Greece with special regard to the influence of its membership in the EEC on the wine market of the Federal Republic of Germany
Diss. Inst. Agrarpolit. Marktforsch., Justus-Liebig-Univ., Gießen, 335 S. (1982)

Author compiles the extensive statistical material on the topical subjects of this paper. In 170 tables and graphs, data on the country and its population, on economy and agriculture — mainly on viticulture and enology in Greece — are composed and discussed in detail: e.g. the Greek wine law and the names of wines, viticultural areas, enological techniques, production of wine, table grapes and raisins (mainly in comparison with the EEC), farm structure, market organization, price formation, consumption, expenditure of work, costs, contribution towards expenses, income. According to an essential result of the investigations, the Greek wines are only little or not at all subjected to the competitive pressure of wines from EEC or other countries. On the other hand, it is supposed that after lifting the still valid import restrictions for wine, efforts for the export of German wines to Greece are not without any prospects, though Greece produces more wine than necessary for domestic requirements (40 l/capita of the population). A short survey on the modern Greek history informs of important true facts.
H. Berndt (Geilweilerhof)

C. PHYSIOLOGIE

BARLASS, M., SKENE, K. G. M.: **Virus-free vines from tissue culture** · Virusfreie Reben aus Gewebekulturen
Austral. Grapegrower Winemaker 19 (224), 40—41 (1982)

Reisig-, blattroll-, fleck- und gelbsprenkelkranke Reben wurden der Apexkultur unterzogen und ein Teil der erhaltenen Kulturen bei 27 °C, der andere bei 35 °C gehalten. Reisigkrankheit läßt sich durch Apexkultur nicht entfernen, reagiert aber auf die folgende Wärmebehandlung, während die Gelbsprenkelung zum Teil durch die Apexpassage verlorengelht, jedoch nicht auf Wärme reagiert, sondern dabei eher noch verstärkt wird. — Blattroll- und Fleckkrankheit werden durch Apexpassage zuverlässig eliminiert.
R. Blaich (Geilweilerhof)

BERAN, N.: **Die Transpiration der Rebe (*Vitis vinifera*) in Abhängigkeit von der Blatttemperatur unter besonderer Berücksichtigung des Bodenwassergehaltes** · Transpiration of the grapevine (*Vitis vinifera*) as a function of leaf temperature with special regard to the soil water content (m. engl. Zus.)
Wein-Wiss. 37, 291—309 (1982)

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

Under open air conditions 3-year-old grapevines (Riesling/SO 4), potted in containers (1 m³), were used in order to study the effects of soil humidity, leaf temperature and light intensity on transpiration. Independent of light intensity at a low soil humidity (<8 % water) transpiration showed no or little alteration by changes in the leaf temperature in the range of ca. 10—30 °C. At medium (8—12 % water) and high soil humidity (> 12 % water) rising leaf temperatures increased the rate of transpiration up to 20—22 °C. Higher temperatures led to a decrease of transpiration at medium soil humidity or to a linear increase at high soil humidity. Under low light intensity conditions a rise of light intensity caused higher increases of transpiration than corresponding alterations at high light intensities.
H. Düring (Geilweilerhof)

BERNARD, A. C., VERGNES, A.: **A propos d'un cas de coulure constitutionnelle chez la vigne: une mutation** · Concerning a constitutional case of grapevine "coulure": a mutation
Progr. Agric. Vitic. (Montpellier) 99, 470—475 (1982)

In the cv. Portan (Grenache noir × Portugais bleu) nearly all the buds fall short after anthesis. This fall is not caused by a virus, but seems to be due to anomalies in the flower development. In fact, histological observations show slits in the ovary, irregular disposition of stamina and ovules, absence of stylar channel and tears in the style and stigma. Probably this new cv., arisen only 20 years ago, already underwent a mutation. *L. Carraro (Mailand)*

BROWN, S. C., COOMBE, B. G.: Sugar transport by an enzyme complex at the tonoplast of grape pericarp cells? · Zuckertransport durch einen Enzymkomplex in den Tonoplasten der Perikarpzellen von Beeren?

Naturwissenschaften (Berlin) **69**, 43—45 (1982)

Dept. Plant Physiol., Waite Agricult. Res. Inst., Glen Osmond, S. A., Australien

Evidence is given for a proposed group translocator for modification and tonoplast transport of sugars in grape berry pericarp. From labeling studies with U-¹⁴C-glucose and fructose and previous data, Authors propose that cytoplasmic hexoses are transported to the tonoplast as sucrose phosphate after modification by hexokinase, glucose phosphate isomerase (G-6-P to F-6-P) and sucrose phosphate synthase. The latter 2 enzymes are proposed to be intimately associated with each other and the tonoplast. Phosphoglucomutase, UDPG pyrophosphorylase, sucrose phosphate phosphatase, invertase (vacuolar) and acid phosphatase (vacuolar) are also suggested to play a possible role. It is concluded that the equimolar concentrations of hexoses in grape juice is a consequence of the tonoplast translocator. *A. N. Lakso (Geneva)*

CARROLL, D. E., MARCY, J. E.: Chemical and physical changes during maturation of muscadine grapes (*Vitis rotundifolia*) · Chemische und physikalische Veränderungen während der Reife von Muscadineatrauben (*Vitis rotundifolia*)

Amer. J. Enol. Viticult. **33**, 168—172 (1982)

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

The quadratic equation, $Y = I + b_1(X) + b_2(X)^2$, was used to describe the relationship between time (X) and the physical and chemical characteristics (Y) of *Vitis rotundifolia* berries over the growing season for the cvs. Carlos and Noble, which were sampled over a period of 72 and 80 d, respectively. — The regression data, i.e., values for I, b_1 , and b_2 , for the above equation describing the relationship between X and berry characteristics for the cv. Carlos were: 2.52, -0.004 and 0.002 for berry wt (g/berry); 2.81, 0.003 and 0.0002 for pH; 92.62, 0.056 and -0.005 for % H₂O; 3.36, 0.043 and 0.004 for °Brix and 3.07, 0.005 and -0.002 for acid (mg tartaric/g deseeded wt). For the cv. Noble the values were: 1.27, 0.000 and 0.001 for berry wt; 2.91, -0.014 and 0.0007 for pH; 92.36, 0.114 and -0.008 for % H₂O; 3.50, -0.041 and 0.007 for °Brix and 2.92, -0.015 and 0.0008 for acid. — The coefficient of correlation (r) was statistically significant for the above relationships as well as for the quadratic relationships between time and the following characteristics: malic acid; tartaric acid; fructose; glucose; sucrose; total phenols (except in the cv. Carlos); berry diameter (except in the cv. Noble) and seed weight. The characteristics measured for the above 2 cultivars were also measured at normal harvest time for the cvs. Magnolia, Dixie, Regale and Pride. *J. O. Johnson (Davis)*

GOODE, D. K. JR., KREWER, G. W., LANE, R. P., DANIELL, J. W., COUVILLON, G. A.: Rooting studies of dormant muscadine grape cuttings · Untersuchungen zur Bewurzelung von ruhenden Muscadinestecklingen

HortScience **17**, 644—645 (1982)

Dept. Hort., Ga. Exp., Sta., Experiment, Ga., USA

At 24 °C (heated bench in the greenhouse) large cuttings (25—30 cm long, 9 mm diameter) and those taken early in the dormant period (Nov. 20) rooted best, followed by regular cuttings (25—30 cm long, 6 mm diameter) and mallet cuttings. However, rooting percentage was low (max. 10 %) and roots were short. Cuttings with aerial roots showed root growth, but not initiation of additional roots. At 18 °C (unheated bench) no roots were formed. Water or sucrose soaking, precallusing (30 d in moist vermiculite at 24 °C), ethephon or indolebutyric acid treatments remained ineffective. Therefore, hardwood muscadine grape cuttings are not recommended for propagation.

F. Sági (Szeged)

HIDALGO, L.: État actuel des recherches sur les chloroses de la vigne · Present state of research on grapevine chlorosis

Bull. OIV 55, 459—483 (1982)

Inst. Nacl. Invest. Agrar., Madrid, Spanien

The symptoms of chlorosis may result from different causes and may appear in other soils than calcareous ones. However, the latter situation only is considered here. The main characteristic is a typical yellowing of the leaves which are more or less damaged; in the same time the annual shoot growth is lowered. Vines showing intense symptoms each year have a decreasing vigour from year to year and the quantity and quality of yield is reduced. Bibliographic data on the causes of chlorosis and on its mechanism of appearance are very numerous. But we are concerned here only with the induced chlorosis which occurs in calcareous soils where CO_2H ions and the amount of utilizable Fe take a preeminent part (Index of Chlorosing Power). It is also very useful to consider separately — in case of grafted vines — the requirements for Fe of the leaves of the scion cv. and the ability of the roots of the stock to meet them (method of reciprocal grafts). Finally some environmental factors are reviewed which may positively act on the occurrence of this physiological disease.

J. P. Doazan (Bordeaux)

LAKSO, A. N.: **Precautions on the use of excised shoots for photosynthesis and water relations measurement of apple and grape leaves** · Vorsichtsmaßnahmen bei der Verwendung abgeschnittener Sprosse für Messungen der Photosynthese und des Wasserhaushaltes bei Apfel- und Rebblättern

HortScience 17, 368—370 (1982)

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

The objective of this study was to determine effects of shoot excision on photosynthesis and water relations of field-grown apple and grape leaves (Concord [*Vitis labruscana*] and Riesling) under laboratory conditions. Photosynthesis measurements with grape shoots excised under water, held in water for 15 s, then quickly transferred to water in a flask indicate that Concord, not Riesling, showed — due to this excision methode — errors within 4 h.

H. Düring (Geilweilerhof)

MANNINI, F., RYUGO, K.: **Effect of 2-chloroethylphosphonic acid (ethephon) on the endogenous levels of gibberellin-like substances and abscisic acid in buds and developing shoots of three grape varieties** · Wirkung von 2-Chloroethylphosphonsäure (Ethephon) auf den Gehalt an endogenen gibberellinähnlichen Substanzen und Abscisinsäure in Knospen und sich entwickelnden Trieben dreier Rebsorten

Amer. J. Enol. Viticult. 33, 164—167 (1983)

Cent. Miglioramento Genet. Vite, Univ. Turin, Italien

Grapevines (Barbera, Carignane and Flame Tokay) were sprayed with ethephon (500, 2000, 5000 ppm) in fall to hasten defoliation. Ethephon inhibited subsequent bud development in cuttings stored at 0—3 °C and in whole vines the following spring. Concentrations of free gibberellin-like substances (α -amylase test) in buds and developing shoots of Barbera and Flame Tokay were unaffected by previous exposure of the vines to 5000 ppm ethephon. Bound gibberellin-like substances were increased in dormant buds of Flame Tokay by ethephon. Free ABA in dormant buds was not influenced by ethephon but ABA released by acid hydrolysis was slightly increased.

B. Loveys (Adelaide)

RASQUINHA, I. A., WILDEMAN, A., NAZAR, R. N., SUBDEN, R. E.: **Effects of grapevine metabolism on the mutagenicity of pesticides** · Wirkung des Rebenstoffwechsels auf die mutagene Wirkung von Pestiziden

Amer. J. Enol. Viticult. 33, 178—180 (1982)

The Ames test was used to study the alteration of mutagenicity and toxicity of pesticides by plant extracts (S14 supernatants from roots and young stems of *Vitis vinifera* cv. Ventura). A complex profile of activation and deactivation was detected when Captan and Pentac were analyzed. [It is impossible to interpret the results. — Ref.]

R. Blaich (Geilweilerhof)

SHULMAN, Y., AVIDAN, B., BEN-TAL, Y., LAVEE, S.: **Sodium bicarbonate, a useful agent for pH adjustment of ethephon controlling grapevine shoot growth and loosening olive fruits** · Natriumbicarbonat, ein nützliches Mittel für die pH-Einstellung von Ethephon

zur Hemmung des Triebwachstums bei Reben und des Fruchtfalles bei Oliven (m. ital. Zus.)

Riv. Ortoflorofrutticolt. Ital. (Florenz) **66**, 181—187 (1982)

Volcani Center Agricult. Res., Bet Dagan, Israel

Aqueous solutions of ethephon (2-chloroethylphosphonic acid) were applied to Perlette grapevines and Manzanillo olives. The effectiveness of the solution in inhibiting grapevine vegetative growth (ethephon 720 mg/l) and promoting fruit loosening in olives (ethephon 1200 mg/l) was greatly enhanced when the pH of solutions were raised from pH 2 to pH 6.5—6.7. Sodium bicarbonate (0.1—0.3 %) was found to be the most suitable chemical for pH adjustment. *B. Loveys (Adelaide)*

SCHAEFER, H.: **Physiologische Untersuchungen zur Veredlungsaffinität und Kallusbildung der Reben. I. Untersuchungen an einfachen und veredelten Stecklingen. II. Analysen des Kallus** · Physiological contributions to the problem of grafting affinity and callus formation of grapevines. I. Studies with simple and grafted vines. II. Analyses of callus (m. engl. Zus.)

Wein-Wiss. **37**, 147—160; 219—233 (1982)

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

In simple and grafted cuttings, graft yield and callus production do not correlate with water content, total carbohydrate, total N and total phenol level of the wood, respectively. Good callus formation largely depends on earlier and more intensive N-translocation to the shoots. A leucine aminopeptidase isoenzyme is a good marker for enhanced soluble N-translocation. Isoenzyme patterns of peroxidase, polyphenoloxidase and acid phosphatase differ according to callus quality. Calli are richer in N-substances and phenolics than wood, but contain a similar amount of carbohydrates. Peroxidase activity is high at grafting and decreases during callus formation, however, it remains high in poor calli (phenol oxidation, IAA degradation!). Slow callusing rootstocks should be stored at higher temperatures or forced longer than faster callusing ones. *F. Sági (Szeged)*

VARANINI, Z., MAGGIONI, A.: **Iron reduction and uptake by grapevine roots** · Reduktion und Aufnahme von Eisen durch die Rebwurzel

J. Plant Nutr. **5** (4—7), 521—529 (1982)

Ist. Chim. Agrar. Ind. Agrar., Univ. Padova, Italien

An abgeschnittenen Wurzeln der Ertragsorte Verduzzo und der Unterlagssorten 420 A und 1103 P wurde deren Eisenreduktionskapazität verglichen. Während bei Verduzzo die Fe-Absorption bei $14,3 \mu\text{mol} \cdot \text{g}^{-1} \cdot \text{h}^{-1}$ lag, erbrachte 1103 P einen Wert von $51,4 \mu\text{mol} \cdot \text{g}^{-1} \cdot \text{h}^{-1}$. Durch Agentien, die den Elektronentransport behindern, konnten diese Werte z. T. drastisch verringert werden. Ebenso verhielt es sich bei einer Temperaturabsenkung des Reaktionsmediums von 30°C auf 0°C . Die biochemischen Grundlagen der Fe-Reduktion sowie die verschiedenen Möglichkeiten der Fe-Aufnahme werden diskutiert. *K. Herwig (Geilweilerhof)*

YAMAKAWA, Y., SIMIZU, H., KUSHIDA, T.: **Seasonal changes in some constituents of Koshu grape berries on normal and "Ajinashi" vines** · Jahreszeitliche Veränderungen einiger Inhaltsstoffe von Beeren der Rebsorte Koshu bei normalen und „Ajinashi“-Reben (jap. m. engl. Zus.)

J. Japan. Soc. Hort. Sci. (Tokyo) **50**, 454—460 (1982)

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

"Ajinashi" (tasteless) disease was first recognized in 1968 on Koshu grapevines (*Vitis vinifera*). In this paper, seasonal changes of sugars and acids were investigated comparing the normal and Ajinashi berries. — The growth curve of Ajinashi berries was almost the same as that of normal berries, although size and weight of Ajinashi berries were somewhat increased compared to those of normal ones. The Ajinashi berries accumulated as much sugars as the normal ones until the 80th d after anthesis. At harvest time, however, the contents of soluble solid, reducing sugar, glucose and fructose were remarkably lower than in normal berries. The highest titratable acid content was recognized on the 60th d after anthesis in both berries and was slightly lower in Ajinashi berries. At harvest time, the contents of titratable acid and malic acid in Ajinashi berries were higher than in normal ones. *Y. Motomura (Sendai)*

ZANKOV, Z.: **Untersuchungen zur Langlebigkeit von Rebensamen** · Investigations on longevity of grapevine seeds

Gradinar. Lozar. Nauka (Sofia) **18** (4), 76—79 (1981)

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

Kerne von über 20 Rebsorten wurden unter Laborbedingungen in Pergaminsäckchen über mehrere Jahre gelagert. Die Stratifizierung erfolgte bei 3—6 °C im Kühlschrank. Die Keimfähigkeit wurde in Petrischalen bei 26—28 °C geprüft. 1 Jahr lang blieb die Keimfähigkeit erhalten und ging bis zum Ende des 3. Jahres ganz verloren. Atmung und Katalaseaktivität erloschen am Ende des 5. Jahres.

H. Hahn (Geilweilerhof)

D. BIOCHEMIE

ERIS, A.: **Ergebnisse von Untersuchungen über die Aminosäuregehalte in den Knospen von Rebstecklingen nach unterschiedlicher Lagerdauer** · Results of examinations about the amino acid contents in buds of vine cuttings under different periods of storage (m. engl., franz. Zus.)

Mitt. Klosterneuburg **32**, 199—202 (1982)

Bahce Bigkileri Bölümü, Ziraat Fak. Üniv. Ankara, Türkei

Cuttings of the cvs. Aris and Bacchus taken in the 1st week of Aug., Sep., Jan. and March were analysed for free amino acids (Beckmann Multichrom Amino Acid Analyser) directly and after a storage at +5 °C until April, respectively. Except the cuttings of Aris taken in Aug. and stored until April, free amino acid level of the buds increased in all samples during storage. Amount of the individual amino acids increased also, but not regularly, resulting in a considerable variation of the percentage composition. Glutamine, glutamic acid, aspartic acid, arginine and γ -aminobutyric acid were the major free amino acids throughout, but only the concentration of glutamine and arginine showed a consequent increase in the cuttings of both cvs. Amide accumulation in the buds of the stored cuttings may be due to decomposition or disturbed synthesis of the proteins.

F. Sági (Szeged)

HASLER, M., RUFFNER, H. P., RAST, D. M.: **High-yield isolation of grape leaf protoplasts as an instrument in physiological research** · Hochleistungsisolierung von Blattprotoplasten bei Reben im Rahmen der physiologischen Forschung

Experientia (Basel) **38**, 564—565 (1982)

Inst. Plant Biol., Univ. Zürich, Schweiz

Protoplasts were isolated from etiolated leaves of sprouted shoots on hardwood cuttings by cellulase treatment. Yields were 50×10^6 protoplasts/g leaf tissue (about 25 %). The non-volatile organic acids of the protoplasts were determined by gas-liquid chromatography and were essentially identical to whole leaf extracts. Incubation of protoplasts for 5 h in $\text{NaH}^{14}\text{CO}_3$ gave ^{14}C labeling pattern similar to intact leaves with heaviest label in sucrose, glucose, fructose, malate, glycine/serine, citrate, and glutamate.

A. N. Lakso (Geneva)

HRAZDINA, G., MOSKOWITZ, A. H.: **Quality contribution of pigments to fruits: The vacuolar contents of grape berry subepidermal tissues** · Die Bedeutung von Pigmenten für die Fruchtqualität: Die Vakuolengehalte des subepidermalen Beerengewebes

In: G. Charalambous, G. Inglett (Eds.): The Quality of Foods and Beverages. Chem. Technol. **1**, 341—359 (1981) Acad Press, London

Dept. Food Sci. Technol., Cornell Univ., Geneva, N.Y., USA

The anthocyanin, flavonol glycoside, hydroxycinnamic acid ester, sugar, acid, and cation composition of DeChaunac grape skins and grape skin vacuoles are reported. Most of these compounds were analyzed through adaptation of HPLC techniques. The concentrations of the anthocyanins, hydroxycinnamic acid esters, sugars, acids, K, Fe, and Cu were 10—40 x greater in the vacuoles than in the total skin. The concentrations of the flavonol glycosides, Ca, Al, and Mn were only

2—3 × greater in the vacuoles. Conversely, the Mg concentration was shown to be approximately 5 × greater in the total skin tissue as opposed to the skin vacuoles. *C. W. Nagel (Pullman)*

JUHÁSZ, O., KÖZMA, P., GYULAY, B.: Änderungen der Ammonium- und Nitratgehalte von Traubenbeeren während der Reife · Changes of ammonia and nitrate-nitrogen content of grape berry in the course of ripening (unger. m. russ., engl. Zus.)

Kertész. Egyet. Közlemén. (Budapest) 44, 27—32 (1981)

Die Untersuchungen wurden bei 4 Traubensorten (Rizlingszilváni, Hárslevelü, Ezerjó, Olasz Rizling) in 7 zeitlichen Abständen, vom 20. 7.—17. 10. durchgeführt. Rizlingszilváni erhielt zum Referenzanbau auch eine Überdüngung mit 200 g K₂O/m² bzw. 100 g N/m². Die Ammoniumgehalte erreichten ihr Maximum am 2. Lesetermin (17—23.8 mg NH₃/100 ml am 8. Aug.) und sanken bis zum letzten Lesetermin auf 6—17.5 mg NH₃/100 ml ab. Bei Ezerjó wurden durchgehend die höchsten Gehalte festgestellt. Die N-Düngung wirkte sich wie die K-Düngung im allgemeinen etwas erhöhend auf die Gehalte aus. Die höchsten Nitrat-N-Gehalte wurden am 3. Lesetermin (0.7—0.986 mg N/100 ml am 21. Aug.) gefunden. Sie sanken bis zum letzten Lesetermin auf 0.57—0.78 mg N/100 ml. Die niedrigsten Gehalte wurden, wie bei NH₃, bei der Sorte Rizlingszilváni festgestellt, die höchsten N-Gehalte bei der Sorte Hárslevelü. — Bei der mit N überdüngten Probe lagen die Nitrat-N-Gehalte gegen Ende der Reife im allgemeinen etwas tiefer, bei der mit K überdüngten Probe etwas höher als bei der Kontrollprobe. *F. Roth (Speyer)*

SCHWENNESEN, J., MIELKE, E. A., WOLFE, W. H.: Identification of seedless table grape cultivars and a bud sport with berry isozymes · Identifizierung von kernlosen Tafeltraubensorten und einem Sport durch Beeren-Isozyme

HortScience 17, 366—368 (1982)

Plant Sci. Dept., Univ. Ariz., Tucson, Ariz., USA

Enzyme-banding patterns of catechol oxidase, acid phosphatase, esterase, alcohol dehydrogenase, indophenol oxidase, and leucine aminopeptidase obtained by enzyme staining of starch gel electropherograms allow the distinction of berries of the grape cvs. Perlette, Thompson Seedless, Superior Seedless and an early ripening sport of Superior Seedless. *R. Blaich (Geilweilerhof)*

WILLIAMS, P. J., STRAUSS, C. R., WILSON, B., MASSY-WESTROPP, R. A.: Novel monoterpene disaccharide glycosides of Vitis vinifera grapes and wines · Neue Monoterpen-Disaccharid-Glykoside bei Vitis-vinifera-Trauben und -Weinen

Phytochemistry (Oxford) 21, 2013—2020 (1982)

Austral. Wine Res. Inst., Glen Osmond, S.A., Australien

The 6-O- α -L-rhamnopyranosyl- β -D-glucopyranosides and 6-O- α -L-arabinofuranosyl- β -D-glucopyranosides of geraniol, nerol and linalool were separated and identified in Muscat of Alexandria grapes and wine. The same compounds were also demonstrated in the grapes of Vitis vinifera cv. Rhine Riesling. The compounds were isolated by HPLC. The identity of the compounds was demonstrated by use of acid hydrolysis at pH 1 and 3 and identification of both the carbohydrate and terpene fragments by GC/MS. In addition, structures were confirmed by NMR spectroscopy and were compared with synthetic compounds. Presumably, these disaccharide terpenes, through acid hydrolysis, serve as precursors of the free monoterpenes found in juices and wines.

C. W. Nagel (Pullman)

E. WEINBAU

BETZ, R., SCHMITT, A.: Über den Einfluß unterschiedlicher Ertragsleistungen der Rebe auf Most- und Weinhaltstoffe. 3. Mitt.: Moste und Weine des Jahrgangs 1979 · Influence of different crop yields of grapevine on must and wine constituents. Note III. Musts and wines of the 1979 vintage

Wein-Wiss. 37, 127—132 (1982)

Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

On Rhinerlesling (RR) and Müller-Thurgau (MTh), tests were carried out to estimate the interaction between charge (6, 12, 15 buds/vine) and sugar degree in the must, wine substances (content of total N, proline polyphenols, weight of extract and ash), and sensory evaluation. Concerning MTh, serious frost injury had reduced the yield and, therefore, only RR vines showed a significant correlation between yield and sugar content in the must, polyphenols and total N in the wine. No relations were observed between analytical values and sensory evaluation. Concerning the flavour, the RR wines deriving from low charged plots got a better mark than those coming from high charged ones. The MTh wines did not show such correlations.
G. Mayer (Klosterneuburg)

BRIZA, R.: Influence of substrates and nutrient solutions on quality and yield of hydroponics-produced grapevine cuttings · Einfluß der Substrate und Nährlösungen auf die Qualität und Ausbeute von hydroponisch angezogenen Setzlingen (slowak.)

Vinohrad (Bratislava) 20, 106—107 (1982)

Výskumná Stan. Vinohradn. Vinár., Modra, CSSR

In order to improve the results of hydroponic culture of vines, the use of different nutrient solutions was studied on a 250 mm sand layer. The result was about 37.5 % of 1st class vines. From the nutrient solutions, the best results in the hydroponic culture were obtained with Wuxal, which produced 68 % of 1st class vines. This result is of importance not only for quality standards but also for improving the rooting ability.
J. Blaha (Brno)

CALÓ, A., CERSOSIMO, A., EGGER, E.: Die Entwicklung der Rebenpflanzguterzeugung in den letzten Jahren · The development of the production of grapevine planting material during the last 10 years (ital. m. engl. Zus.)

Riv. Viticolt. Enol. (Conegliano) 35, 309—319 (1982)

Ist. Sper. Viticolt., Conegliano, Italien

Quantitativ wurde in der italienischen Pflanzguterzeugung bis 1974—1975 ein ständiger Anstieg, danach eine stärkere Abnahme beobachtet. Die Menge der gebräuchlichsten Unterlagen wie 140 Ru., 5 BB und 420 A nahm von 1974—1975 an stark ab, bei anderen Sorten waren die Veränderungen geringfügig; 779 P. zeigte eine erhöhte Verbreitung. Die Anbautendenz verlagerte sich zuletzt mehr in Richtung Weißwein, wobei in steigendem Maße auf bessere Weinqualität geachtet wird. Bei den Tafeltrauben blieb die quantitative Entwicklung nahezu gleich, der Anbau der Sorte Italia stieg aber auf Kosten von Regina und Schiava grossa stark an. In den letzten Jahren setzte sich in Italien die Verwendung von zertifiziertem Pflanzgut bei den Unterlagen anstatt von Standardgut immer mehr durch. Das ist vor allem bei 140 Ru., weniger jedoch bei 5 BB und anderen Sorten der Fall. Bei Kelter- und Tafeltrauben ist die Klonenselektion noch nicht so weit fortgeschritten.

H. Schaefer (Neustadt)

DARIS, M. B.: An international survey on the use of herbicides in vineyards · Ein internationaler Übersichtsbericht über die Verwendung von Herbiziden in Rebanlagen (ital.)

Vignevisini (Bologna) 9 (1—2), 15—19 (1982)

Inst. Vigne, Lycovrissi-Amaroussion, Athen, Griechenland

The paper represents a summary and conclusions of a survey conducted on the use of herbicides in different countries of the world. While 100 % of the area is treated in Switzerland, 90 % in New Zealand, 80 % in California, it is still in the experimental stage in some countries. About half of the French vineyards are treated. Of the pre-emergence sprays simazin is the most widely employed. Most currently used systemic are aminotriazole and glyphosate. Dalapon is less in use. Diquat and paraquat are the most common contact herbicides. There are 3 methodes of utilization: Whole area, along the rows, temporary (spring). The most universal weed in *Convolvulus* with *Agropyron repens* prevalent in northern, *Cynodon Dactylon* in southern vineyards. Decreased production was noted in certain light soils, with higher yields upon treatment in others. Neither residues were found in wines nor an effect upon yeasts. Author lists causes of phytotoxicity mainly during early stages of the practice. With quantities, time of application respected, no grave risks were incurred, except with late applications of glyphosate, on some very shallow soils and especially with vine replants on new cultures. A period during which no herbicides are used (2—3 years) before replanting seems advisable.
P. Spiegel-Roy (Bet Dagan)

DURQUETY, P. M., NAUDE, E., BLANCHARD, P.: **La prévision de récolte sur Petit Manseng (*Vitis vinifera* L.) basée sur les courbes-niveaux de fertilité et les températures durant une période critique** · Forecasting the harvest of Petit Manseng (*Vitis vinifera* L.) based on fertility level curves and temperatures during a critical period
 Progr. Agric. Vitic. (Montpellier) **90**, 460—469 (1982)

This paper addresses the problem of predicting effects on yield of cluster initiation in the previous season. The paper uses data from 9 years of a pruning trial with the cv. Petit Manseng. Results were expressed as yield/node (bud) retained at winter pruning for 15, 20, 25, 30, 35 and 40 nodes/vine. The temperature data for the months of May, June and July in the preceding year were correlated with yield/node. The period giving best correlation was 6—25 June, which corresponds to flowering time of this cv. Logarithmic equations between yield/bud and temperature sum for the period 6—25 June were developed for each pruning level. These curves suggest critical temperature values below which there is no yield i.e., anlagen are present as tendrils (filage). The paper provides interesting evidence for a climatic (thermal) effect on fruit bud initiation.
 R. E. Smart (Hamilton)

FADER, W.: **Untersuchungen über die Anwendung von Kellereiabfällen zur Weinbergsdüngung** · Tests for using winery refuses as fertilizers in vineyards
 Dt. Weinbau **37**, 1124—1128 (1982)

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

Lees coming from fermentation and finings were tested as fertilizers in field and also in container trials. Author observed that all lees, except those coming from blue fining, are available. Without composting the lees are brought out. They are spread either by hand or, if using a filter press, mechanically (dungcutter). Fining lees are brought out by grape tray with a screw. A quantity of 200—400 dt/ha satisfies the needs of N, complementary PK fertilizers are necessary.

G. Mayer (Klosterneuburg)

FADER, W.: **Einige Überlegungen zur Tiefenbearbeitung offengehaltener Weinbergböden in Direktzuglagen** · Some thoughts on in-depth cultivation of vineyard soils kept without green cover and workable by tractor

Dt. Weinbau **37**, 1429—1431 (1982)

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

This thought-provoking article discusses the cultivation of vineyard soils before winter or in preparation for planting. The use of the standard plough for turning over a shallow layer of soil is questioned and studies on its replacement by a spading machine or a scarifier are recommended. Deep ripping has to be done carefully and correctly to assure beneficial effects. Trench-ploughing should be combined or even replaced with subsoiling to avoid possible detrimental effects.

P. May (Adelaide — Dijon)

FANIZZA, G.: **Effects of the reduction of yield per ha on the quality of grapes in Apulia** · Die Auswirkungen der Beschränkung des ha-Ertrages auf die Qualität der Keltertrauben in Apulien (ital. m. engl. Zus.)

Vignevisini (Bologna) **9** (4), 45—46 (1982)

Ist. Miglior. Genet. Pianta Agrar., Univ. Bari, Italien

A study was carried out in Apulia with 8 wine grape cvs. in order to determine the effect of yield reduction from 30—40 t/ha to 15—20 t/ha on production, sugar and acid content, and pH of the must. With Malvasia cv. no differences were found; sugar was high (21.2—21.3 °B), total acidity low and pH high. With Trebbiano, fruit-thinned plants had higher sugar (19 °B vs. 17 °B) with no differences in acid and pH values. With Sangiovese also somewhat higher sugar was attained by reducing the crop by ½, but the 20 °B level was not achieved; acidity and pH were satisfactory. With most cvs. the aim of sufficient sugar (above 20 °B) high acidity and low pH in the must was not attained. Improved cvs. may be needed in order to obtain along with reduction in yield and with the overhead arbor system wines with satisfactory sugar, acidity and pH in southern Italy.

P. Spiegel-Roy (Bet Dagan)

FISCHER, A.: **Verwertung von Rebholz — konventionell oder alternativ?** · Utilizing grape wood — conventionally or alternatively?

Dt. Weinbau **37**, 486—490 (1982)

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

Rebschnittholz — Ertrag etwa 30 dt/ha Frischholz (50 % Wassergehalt); Brennwert 15 300 kJ/kg Tr.S. — wird bislang zerkleinert und zur Humusversorgung in der Anlage belassen, bei schlecht mechanisierbaren Steil- und Terrassenlagen auch in der Anlage verbrannt. Rebschnittholz als alternative Energiequelle benutzt, würde einer Ölmenge von 500 l/ha entsprechen. Diesem Geldwert von etwa 400 DM/ha steht der Nährstoffwert von nur etwa 200 DM/ha gegenüber. Bei diesen Berechnungen sind auf der einen Seite der Ausnutzungsgrad des Nährstoffgehaltes von Rebholz, auf der anderen Seite die zusätzliche Energie und der Arbeitszeitaufwand für die Bergung des Schnittholzes nicht berücksichtigt. — Der Verwendung von Rebholz als Alternativenergie stehen gegenwärtig entgegen der Humus- bzw. Nährstoffverlust des Schnittholzes in der Anlage, der erhöhte Arbeits- und Energieaufwand für das Sammeln, Zerkleinern und Lagern, der Investitionsaufwand für Lagerräume und für Verfeuerungseinrichtungen. Hinzu kommt, daß keine erprobten Verfahrenstechniken bzw. Geräte für diese neue Technologie zur Verfügung stehen.

E. Moser (Stuttgart)

FOGLIANI, G., ROSSI, V., VALLI, R.: **Investigations on growth and productivity of vines damaged by winter frosts** · Untersuchungen über Wachstum und Ertrag bei winterfrostgeschädigten Reben (ital. m. engl. Zus.)

Riv. Vitecolt. Enol. (Conegliano) **35**, 135—162 (1982)

Ist. Patol. Veg., Fac. Agrar., Univ. Catt. S. Cuore, Piacenza, Italien

The effect of winter frosts (–18 to –20 °C) on vineyards in Reggio Emilia was investigated; in particular, damage to dormant buds (main and secondary buds), fertility of buds, production during 2 consecutive years and characteristics of the must. Time of pruning before frost increased damage. More damage was found with vines trained to G.D.C. The Uva d'Oro cv. was most susceptible. The percentage of resistant main shoots was low and no influence of cv. or training was noticed. Shoots from secondary buds had a high degree of resistance (average –42 %). Statistical analysis was not possible for assessment of the "recovery potential" defined as number of clusters/secondary shoot. Percentage of damage to vines seemed correlated with higher acidity in the must. Higher yields and lower sugar characterized damaged vines in the 2nd year following frost.

P. Spiegel-Roy (Bet Dagan)

FOX, R.: **Erziehungsarten und Pflanzenabstände im Weinbau aus pflanzlicher Sicht** · Training systems and per-area-number of vines in view of the plant

Dt. Weinbau **37**, 278—281 (1982)

Staatl. LVA f. Wein- Obstbau, Weinsberg

Author demonstrates the essential demand of training systems with regard to the modern viticulture and reports on tests carried out under German conditions. Grafted vines, especially selected vines, demand an enlargement of the space because of their vigour; 2.40 m between the rows are necessary at least, yet late ripening cvs. (Riesling) show a decreased sugar content if spaced 3.20 m. The favourable interrow space is 1.20—1.40 m. In order to place the adequate number of buds, 2 arches of cane are indispensable to guarantee the yield/unit. The favourable height of foliage wall is depending on the space between the rows, not exceeding 2.20 m.

G. Mayer (Klosterneuburg)

GARLOCK, D.: **Three vine management techniques used during consecutive years of abnormally low winter rainfall in the Napa Valley** · Drei Methoden zur Rebenbehandlung in aufeinanderfolgenden Jahren mit ungewöhnlich geringem Winterregen im Napa Valley

Amer. J. Enol. Viticult. **33**, 117—123 (1982)

3 vine management techniques to offset low winter rainfall were studied in non-irrigated vineyards during the California drought of 1976 and 1977. 1) The removal of fruiting canes to limit crop was a poor method as it reduced vine yields substantially without improving vine growth. 2) Limited summer drip and sprinkler irrigation successfully maintained the vines and improved fruit development and vine yields. 3) Heavy winter irrigation treatment produced the best vine response in optimum vine growth and crop yield and is the author's preferred recommendation in years of drought.

P. Christensen (Fresno)

GODDEN, G. D., HARDIE, W. J., WITCOMBE, R. K.: **Plastic sheet mulch — a favourable alternative to herbicides during vineyard establishment** · Plastikfolien-Abdeckung — eine günstige Alternative zu Herbiziden bei der Neuanlage von Rebgrärten
Austral. Grapegrower Winemaker **19** (224), 30—35 (1982)

A 6-year experiment comparing the use of black polyethylene sheet mulch and the application of herbicides during the establishment of a vineyard, was held in Victoria. Results have shown that mulched vines have many advantages compared to those established with herbicides, such as quicker and bigger vegetative growth, bigger trunk circumference and higher yield. Economic evaluation has shown that plastic mulch provides a net benefit of 4,000 \$ A/ha as against the alternative of herbicide application.
B. Daris (Athen)

GRITSUN, N. I., KHAIDU, V. I., KATAEVA, T. V.: **The quality of mechanically harvested grapes and of the resulting wines** · Die Qualität der Trauben und des Weines nach maschineller Lese (russ.)

Sadovod. Vinogradar. i Vinodel. Moldavii (Kishinev) **37** (5), 36—38 (1982)

3 types of grape harvesting machines (Don, Kuban and VK-2) were compared with regard to the quality of grapes and wines. The results are indicated in detail. There are no great differences among them, but it is necessary to keep the content of SO₂ always at the rate of 20—25 mg/l. The increased content of Fe (> 10 mg/l) must be removed by clearing and fining. With the shaking type of harvest machines, the content of leaves amounted to 0.2—0.7 %.
J. Blaha (Brno)

GUZUN, N. I., ZEMSHMAN, A. Ya., ZUEV, V. B.: **Accelerated propagation of new grape cultivars** · Die beschleunigte Vermehrung neuer Rebsorten (russ.)

Sadovod. Vinogradar. i Vinodel. Moldavii (Kishinev) **37** (4), 26—28 (1982)

Grapevine cuttings (about 1 eye) are planted in small polyethylene bags (8 × 16 cm), containing a mixture of peat and sand (1 : 2). The eyes must remain above the edge of the bag. The bags are deposited in an adapted greenhouse on a layer of 2—3 cm of the same mixture. After the rise of 8 leaves, the rooting system lengthens into the bottom part of the mixture. The size of the bags can be different. The plantlets can afterwards be transmitted into a special mother plantation for further examination and selection.
J. Blaha (Brno)

KOBLET, W.: **Bodenfeuchtigkeit, Blattertemperaturen und Assimilationsleistungen junger Reben** · Soil humidity, leaf temperature and the assimilation rate of young grapevines
Schweiz. Z. Obst- Weinbau **118**, 556—561 (1982)

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

The leaf temperature of irrigated 2—3 years old potted grapevines was found to be slightly lower than that of unirrigated grapevines. The uptake of ¹⁴CO₂ of unirrigated grapevines was reduced; 24 h after rewatering a general recovery was observed.
H. Düring (Geilweilerhof)

LIUNI, C. S., ANTONACCI, D., COLAPIETRA, M.: **Der Einfluß von Bewässerungstechnik und Düngung auf die Rebknospen im heiß-ariden Süden. III. Mitt.: Wechselwirkungen zwischen Bewässerung und mineralischer Ernährung** · The effect of irrigation technique and fertilizing on grapevine buds in warm-arid southern regions. Note III: Correlations between irrigation and mineral nutrition (ital. m. franz., engl. Zus.)

Riv. Vitecolt. Enol. (Conegliano) **35**, 197—201 (1982)

Ist. Sper. Vitecolt., Bari, Italien

Verff. untersuchten in Apulien die Wirkung der N-Düngung bei wöchentlicher (53 m³/12 h/ha) und halbwochentlicher Tropfbewässerung (26,5 m³/6 h/ha). In den Varianten wurden (I) 300 kg/ha N-Dünger beim Austrieb, (II) 300 kg beim Austrieb + 100 kg zur Zeit des Fruchtansatzes, (III) 300 kg beim Austrieb + 100 kg beim Fruchtansatz + 100 kg zur Zeit des Weichwerdens der Beeren gegeben. — Die Wassermenge von 3000 m³/ha/Jahr erwies sich als überdosiert. Bei der Sorte Montepulciano ergab sich optimal eine Ertragssteigerung von 59 % bei (III) und wöchentlicher Bewässerung gegenüber 27 % bei 2maliger Bewässerung/Woche. Bei Sangiovese betrug die Steigerung nur 27 %, hier genügte die Düngungsvariante (II) bei wöchentlicher Bewässerung. Eine 3. Düngergabe brachte keine Verbesserung des Ertrags.
H. Schaefer (Neustadt)

LIUNI, C. S., ANTONACCI, D., PEDONE, L.: **Die frühzeitige Entwicklung des Stammtriebes als Maßnahme für raschen Ertrag in einer Weinbergsneuanlage** · The early development of the stem shoot as a measure for rapid grape production in a new-established vineyard (ital. m. engl., franz. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 320—332 (1982)

Ist. Sper. Viticolt., Conegliano, Italien

Verf. beschreiben Maßnahmen zur Umstellung auf frühzeitiges kontrolliertes Wachstum. Dazu gehören vor allem die richtige Auswahl und Bearbeitung des späteren Stammtriebes bereits im 1. Jahr und große Sorgfalt beim Rebschnitt. Auf diese Weise kann schon im 2. Jahr 50 % und im 3. Jahr 100 % Ertrag erzielt werden.
H. Schaefer (Neustadt)

LIUNI, C. S., PALUMBO, G.: **The effect of irrigation technique and fertilizing on grapevine buds in warm-arid southern regions. Note VII: Conclusive considerations concerning localized irrigation experiments with small jets on wine grape vineyards in Capitanata (1974—1981)** · Der Einfluß von Bewässerungstechnik und Düngung auf die Rebknospen im heiß-ariden Süden. VII. Mitt.: Abschließende Betrachtungen über Versuche zur lokalisierten Bewässerung mit kleinen Düsen bei Keltertraubenanlagen in Capitanata (1974—1981) (ital. m. franz., engl. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 221—224 (1982)

Ist. Sper. Viticolt., Bari, Italien

A problem in irrigating a vineyard for wine grapes in Capitanata with only 2.5 l water/sec. available for 25 ha, for the April-September irrigation period, was solved by applying 1111 drip points of 4 l each for the 1111 vines/ha, with the formation of irrigated sections of 2 ha each. Production rose from 120—130 dt/ha to 200 dt/ha. Maximum permissible bud load was 44 000 buds/ha, allowing a production of 500 g/bud. Subirrigation (burying below soil drip refurnishing points — less than 300/ha) was considered best, evading also excessive evaporation. Moreover, it seems that water supply, localized at jets of less than 10 l and with high frequency, is not the best system for warm-arid environments with precipitations between 200 and 500 mm/year.
P. Spiegel-Roy (Bet Dagan)

LOMBARDO, V., SALA, G., TRAPANI, N.: **Irrigation experiments carried out on trellised wine grapes in western Sicily. Note II: The influence of time and amount of irrigation on the wine quality of four white wine grape cultivars** · Bewässerungsversuche an Keltertrauben mit Drahtrahmenerziehung in Westsizilien. II. Mitt.: Der Einfluß von Zeitpunkt und Menge der Bewässerung auf die Qualität von 4 weißen Keltertraubensorten (ital. m. engl. Zus.)

Vignevisini (Bologna) **9** (3), 51—58 (1982)

Ist. Agron. Gen. Colt. Erbacee, Univ. Palermo, Italien

The effect of irrigation treatments on 4 white wine grape cvs. was assessed by vinifying 15 kg samples during the 3rd year of the experiment, and by sampling certain treatments only during the first 2 years. Irrigation was applied (i) after full set, (ii) at the beginning of véraison, (iii) towards maturity (about 20 August) or only at (i) or (ii) of the stages mentioned. No comparison was made with unirrigated plots, generally yielding wines with low acidity and high alcohol content. There was a tendency to higher alcohol in treatments irrigated at stages (ii) and (iii), compared to irrigation at stages (i) and (ii). Level of acidity seemed to be influenced more by season (year) than by treatment. Of the 4 cvs. tested, 2 (Grecanico, Damaschino) yielded good quality table wines with irrigation, 1 — cv. Insoia — gave only a passable wine, while wines from cv. Cataratto had a tendency to oxidation and were generally unsuitable for table wines.
P. Spiegel-Roy (Bet Dagan)

MACICI, M., MIHALACHE, L., PITUC, P., OPREA, ST.: **L'influence de la conduite des vignes sur tiges sur la quantité et la qualité des raisins dans les conditions de la Roumanie** · The effect of training vines to stalks on the quantity and quality of grapes under conditions of Romania

Bull. OIV **55**, 585—591 (1982)

Inst. Cercet. Viticult. Vinifcate, Calugareasca, Rumänien

This paper describes the transition from low-trained vines (multiple Guyot) covered in winter, to the cultivation of higher-trained vines. A bibliography of 16 references covers agronomic, physiological and economical studies. High training avoids the extremes of temperature — high in summer and low in winter — found with low training systems. High training increases biomass production in roots and shoots, and offers sites for reserves storage in older wood. Yield is increased by 20—25 %, for the same bud number retained. Maturity may be delayed a few days, and acidity slightly higher. Wine quality and composition is little affected, and susceptibility to *Botrytis* attack is reduced by high training.
R. E. Smart (Hamilton)

MALAKHOVA, N. P., PONOMARCHUK, V. P.: Influence of micronutrients on the quality of grapevines · Einfluß von Mikronährstoffen auf die Qualität der Rebe (russ.)
Vinodel. i Vinogradar. SSSR (Moskau) (1), 25—28 (1982)

The effect of soil and leaf application of B and Zn on yield, sugar content, titratable acidity and mineral composition of fruit was studied. The experiment was conducted in the Alma-Ata area of Kazakhstan on own-rooted Rkatsiteli and Rhinerlesling cvs. on a soil with alkaline reaction, medium content of B (0.25—0.5 mg/kg) and low Zn (0.025—0.1 mg/kg) in the soil. Microelements were applied at a rate of 2 and 4 kg/ha (B), 6 kg/ha (Zn) at a depth of 30—35 cm, once in 4 years or sprayed at the 0.1 % conc. before flowering and at the beginning of ripening. Zn was much more effective as a spray in increasing yields. B sprays were ineffective, and the lower dose of B applied to soil proved best. Highest effect on sugar content was achieved by application of 2 kg/ha B with Rkatsiteli, and with Zn sprays on Riesling. Zn lowered fruit acidity. Analysis showed higher B in fruit from plots treated by soil application of B, and higher Zn in plots sprayed with NPK. Higher Mn was found in plots treated with NPK. Zn sprays are now successfully employed on large grape areas in southeast Kazakhstan.
P. Spiegel-Roy (Bet Dagan)

NEURURER, H.: Emploi des herbicides dans les vignobles. Exposé · Application of herbicides in vineyards. Report
Bull. OIV 55, 575—584 (1982)
Bundesanst. Pflanzensch., Wien, Österreich

This is a report on the present situation of weed control in Austrian vineyards: Applied herbicides and effect on weed flora; programs on the control of resistant weeds (*Convolvulus*, *Agropyron*, *Panicum*); application of interrow grass cover and precautions taken for a more careful utilisation of herbicides.
B. Daris (Athen)

MIRAVALLE, R.: Chemical weed control in vineyards · Chemische Unkrautbekämpfung in Rebanlagen (ital.)
Vignevini (Bologna) 9 (1—2), 21—26 (1982)
Catted. Viticult., Univ. Catt. S. Cuore, Piacenza, Italien

The use of chemical weed control is on the increase mainly because of the need to reduce costs. It is of special importance in vineyards planted on slopes or very dense plantations. Author distinguishes between a) vineyards which have never been treated or very rarely, b) vineyards in which chemical weed control is normal practice. The 1st stage is eradication, the 2nd maintenance. Although it seems preferable to change materials every 3—4 years, many French vineyards have been treated for 15 consecutive years with the same herbicide, unharmed. The practice should begin usually during the 4th year, but with simazin (2—3 kg/ha) the vineyard can be treated the 1st year. New techniques of application include "dribble bars", developed in France, and, influenced by ultra low volume application, a distribution system of porous tissue, making use of 2—4 l/ha with highly systemic materials. A list of herbicides and their characteristics is given. There is a tendency for lesser use of residuals and more frequent use of pre-emergence sprays.
P. Spiegel-Roy (Bet Dagan)

MORRIS, J. R., CAWTHON, D. L.: Effect of irrigation, fruit load, and potassium fertilization on yield, quality, and petiole analysis of Concord (*Vitis labrusca* L.) grapes · Einfluß von Bewässerung, Stockbelastung und Kaliumdüngung auf Ertrag, Qualität und Analyse des Blattstiels bei Concordreben (*Vitis labrusca* L.)
Amer. J. Enol. Viticult. 33, 145—148 (1982)
Dept. Hort. Food Sci., Univ. Ark., Fayetteville, Ark., USA

This study reports the effect of irrigation, pruning severity and K fertilization on yield, growth, petiole mineral and juice composition. Yields were increased by irrigation, lighter pruning and K fertilization, and in combination these treatments increased yields by 120 %. K fertilization increased petiole K content and decreased Mg. Fruit soluble solids were decreased by irrigation in a normal year but irrigation increased soluble solids in a dry year, due to maintaining functional leaf area. Juice K content was increased by irrigation and K fertilization, and juice pH only by K fertilization.
R. E. Smart (Hamilton)

MÜLLER, K.: **Der pflanzenverfügbare Stickstoff in Weinbergböden und die jährliche N-Düngung** · The nitrogen available to the plant in vineyard soils and the annual N fertilizing

Dt. Weinbau 37, 330—334 (1982)

Bayer. LA f. Weinbau Gartenbau, Würzburg-Veitschöchheim

The increasing production cost, but also the accumulation of NO_3 in the ground water oblige to reduce the quantity of N fertilizer. The N_{min} -method permits to calculate exactly the quantity of N fertilizer indispensable for growth and yield. Authors carried out N analyses in A and B horizons monthly and noticed that the results of N analyses carried out in February and June are most important to calculate the N quantity. As basic requirement, a quantity of 50—150 kg/N is accepted depending on contents of humus and clay in the soil.
G. Mayer (Klosterneuburg)

MURISIER, F., SIMON, J.-L.: **La plantation de la vigne. Essais d'amélioration de la reprise** · Plantation of vines. Attempts to improve rooting (m. ital., dt. Zus.)

Rev. Suisse Viticult. Arboricult. Hort. (Changins) 14, 201—207 (1982)

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

Des différents essais, il ressort que l'emploi d'engrais minéral ou organique actif, comme le fumier déshydraté, est à éviter dans les trous de plantation. Les composts bien décomposés peuvent apporter une certaine amélioration. La tourbe humide convient bien aux terres moyennes et lourdes retenant bien l'eau mais est à déconseiller dans les terres légères séchées. La profondeur de plantation dépend de la nature du sol. Elle sera peu importante (18—20 cm) dans les sols très argileux, plus forte (30 cm) dans les terres arides et intermédiaire (22—25 cm) dans les bonnes terres moyennes. Dans les terrains lourds, une bonne préparation du trou de plantation à la bêche est bénéfique.
M. Broquedis (Talence)

PEROV, N. N., ŽUKOV, A. I., ILJAŠENKO, O. M., TATAŠJAN, A. A.: **A solution of high nutritional value for hydroponic culture of grafted vine cuttings** · Vollwertige Nährlösung für die hydroponische Kultur gepfropfter Rebsetzlinge (slowak.)

Vinohrad (Bratislava) 20, 55—56 (1982)

In the hydroponic production of vines in Crimea (Soviet Union) a careful study relating to the quality standards of paraffined vines was made. The best results were obtained with the nutrient solution AZOS. This solution was composed of urea, 326 mg/l, calcium phosphate, 260 mg/l, potassium chloride, 608 mg/l, magnesium sulphate, 306 mg/l, potassium sulphate, 188 mg/l, adenosin triphosphoric acid, 10 mg/l, ferrocitrate, 10 mg/l, boric acid, 2.3 mg/l, manganese sulphite 0.8 mg/l, and copper sulphate, 0.64 mg/l, the pH-index being 6.0—6.5. The increase of 1st class vines of the cv. Rhinerlesling was about 10 %.
J. Blaha (Brno)

PERRET, P.: **Ertrags- und Qualitätsbeeinflussung durch die Begrünung im Weinbau. Ergebnisse eines 10jährigen Versuches** · Effects of cover crops on yield and quality in vineyards over a 10-year period

Schweiz. Z. Obst- Weinbau 118, 470—480 (1982)

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

Author investigated the effects of cover crops on grape cvs. Blue Burgundy and Müller-Thurgau under the climatic conditions of Switzerland over 10 years. In comparison to the cultivated plots, on an average the mean yield was diminished by 625 kg/ha in the plots with cover crops. However, the sugar content was increased, especially in years with high maturity. Contrary to the expectations, the infection with *Botrytis* and stielähme was significantly reduced by 34—59 % compared to the cultivated plots.
G. Mayer (Klosterneuburg)

PFUFF, F., BECKER, E.: **Hochstammreben — ein Weg zum Ausbessern von Fehlstellen in Rebanlagen** · High-trunked vines — a way of filling gaps in vineyards
Dt. Weinbau **37**, 284—286 (1982)

LLVA f. Landwirtsch. Wein- Gartenbau, Oppenheim

Authors report on the 1st extensive experiments on the possibility of filling gaps by high-trunked vines. This is an essential advantage, because the increased expenditure of work in planting such grafts can be neutralized by earlier yields (already 2 years after plantation) which leads to economical profits during the cultivation. — However, the consequences of detrimental winter frost and the employment of grape harvesting machines demand further examinations. *B. H. E. Hill (Lauffen)*

POUGET, R., DELAS, J.: **Interaction entre le greffon et le porte-greffe chez la vigne. Application de la méthode des greffages réciproques à l'étude de la nutrition minérale** · Interaction between scion and rootstock in grapevine. Application of the reciprocal grafting method to the study of mineral nutrition (m. engl. Zus.)
Agronomie (Versailles) **2**, 231—242 (1982)

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

The reciprocal grafting method was used to determine the respective influence of the rootstock variety and the scion variety on the mineral content (Ca, Mg, K) of blades and petioles. The results show that leaf mineral content in the scion may be considered as the result of 2 physiological properties: 1. The absorption ability of the root system; 2. the accumulation ability of the leaf blade and the transit ability of the petiole. By using the reciprocal grafting method, it is possible to classify rootstock and scion by their respective abilities to absorb and to accumulate a given mineral element.
R. Wagner (Villeneuve les Maguelonne)

REDL, H.: **Vergleich der Moser-Hochkultur mit der Eindraht-Erziehung im Hinblick auf das Krankheitsauftreten, die Menge und Güte des Ertrages sowie den Arbeitsaufwand** · Comparative study between Moser-high-trellis and single-wire-training in regard to incidence of diseases, yield quantity and its quality as well as labour expenditures of viticulture (m. engl. Zus.)

Wein-Wiss. **37**, 310—325 (1982)

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

Author compared the method of Lenz Moser training (trunk height 1.35 m) to different free-grown single wire systems (trunk height 1.70 m). He observed that all free-grown training systems showed a reduced growth of summer shoots, smaller leaves, later wood ripeness and, consequently, higher incidences of diseases as well as significantly decreased yields and decreased degrees of must sugar. Concerning the labour expenses, only the working hours for pruning, but not for harvesting, were reduced. The expenses for trellising were also reduced, but the grapes reached the highest bearing capacity 1 year later than with the Lenz Moser system.
G. Mayer (Klosterneuburg)

SMART, R. E., SHAULIS, N. J., LEMON, E. R.: **The effect of Concord vineyard microclimate on yield. I. The effects of pruning, training, and shoot positioning on radiation microclimate** · Der Einfluß des Mikroklimas einer Concord-Rebanlage auf den Ertrag. I. Auswirkung von Schnitt, Erziehung und Ausrichtung der Triebe auf die Einstrahlung
Amer. J. Enol. Viticult. **33**, 99—108 (1982)

Ruakura Soil Plant Res. Sta., Hamilton, Neuseeland

The effects on the radiation microclimate of Concord grapevines of varying the pruning severity, the training method (Hudson River Umbrella or Geneva Double Curtain) and of shoot positioning were studied. Basal leaf illuminance was improved early in the season by canopy division and low shoot density and after flowering by shoot positioning. The effect of the treatments on the proportions of "interior" and "exterior" leaves, supported by measurements of photosynthetically active radiation (PAR), the proportion of 660 : 730 nm radiation and of leaf aspect and inclination is discussed.
P. R. Clingeffer (Merbein)

SMART, R. E., SHAULIS, N. J., LEMON, E. R.: **The effect of Concord vineyard microclimate on yield. II. The interrelations between microclimate and yield expression** · Der Einfluß des Mikroklimas einer Concord-Rebanlage auf den Ertrag. II. Die Korrelation zwischen Mikroklima und Ertrag

Amer. J. Enol. Viticult. **33**, 109—116 (1982)

Ruakura Soil Plant Res. Sta., Hamilton, Neuseeland

The yield of Concord grapevines was increased by less severe pruning and training on a divided canopy. Berry number, especially on the primary shoot, was the main variable, determining yield per node. Differences in yield per node were large and, even for adjacent nodes on 4-node bearers, there was no correlation between node yields. Yield per node was shown to be positively correlated with variation in the radiation microclimate of the subtending leaf in the growing season preceding fruiting. This correlation explained up to 37 % of the variability and was highest for leaves well exposed in the prebloom period, especially for those with constant illumination.

P. R. Clingeffer (Merbein)

STEINBERG, B., HUSSE, B.: **Möglichkeiten der biologischen Bodenpflege im Weinbau**

Possibilities of biological soil management in vineyards

Dt. Weinbau **37**, 774—775 (1982)

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

The article enumerates the main aims of biological soil management as well as possible drawbacks of green manure, such as cost of seed, additional water use, increasing risk of frost. Temporary green cover, natural swards and permanent green cover are considered. Temporary green covers can be established during fall (better erosion control, higher frost risk), in spring (April: about 65 d of growing season) or in late summer. Their effect on humus content should not be overestimated. Cover by natural swards is rather incomplete. With permanent covers, the main problem is the rather high water use. In view of this, selection of the most suitable plants for cover becomes crucial. Experiments have shown that a combination of grasses and clovers is rather impractical, as the latter are unable to compete with the grasses and with natural vegetation. In dry situations, *Festuca* species have proven most suitable. *Lolium perenne*, on the other hand, proved unsuitable, because of high water use and large biomass above soil level.

P. Spiegel-Roy (Bet Dagan)

STEINBERG, B., BETTNER, W., LANG, E.: **Beziehungen zwischen Blattflächen, Blattgewichten und Schnittholz bei verschiedenen Rebsorten** · Relations between leaf area, leaf weight and wood yield in different grapevine cultivars

Wein-Wiss. **37**, 75—87 (1982)

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

Authors developed a photometric measuring instrument, which allows a great number of measurements of leaf areas. The investigations were carried out on the cvs, Rhineriesling, Thurling, Ehrenfelser, Kerner, and Optima. Concerning growth and leaf size, these cvs. showed great differences, but the regression-coefficients calculated between leaf area and leaf weight and also between leaf weight and wood yield did not show any significant differences between these 5 cvs. Therefore, evaluating the leaf weight allows to calculate the leaf area.

G. Mayer (Klosterneuburg)

TAKAGI, N., INOUE, J.: **Effects of temperature conditions in a greenhouse on the growth of Muscat of Alexandria grapes** · Die Wirkung der Temperaturbedingungen im Gewächshaus auf Triebwachstum und Beerenentwicklung der Sorte Muskat von Alexandrien (jap. m. engl. Zus.)

J. Japan. Soc. Hort. Sci. (Tokyo) **50**, 445—453 (1982)

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

In Japan, studies were carried out in order to determine the effect of heating the greenhouse on the development of grapes, cv. Muscat of Alexandria, with special regard to saving fuel oil. Heat summation was expressed as degree-days, the sum of the mean daily temperatures above 10 °C. However, in the 1st growth stage — calculated from bud burst — shoot growth and anthesis could be ascertained by degree-days above 2.9 and 2.7 °C, respectively. For anthesis, 661 degree-days were required. It could be established: the higher night and daytime temperature, the better berry growth. In the 2nd growth stage, no effect of house heating on the promotion of berry growth was

found. The period between anthesis and veraison also was not shortened by heating the house. Berry set increased with a fall of house temperature from midnight to morning during the blooming. Therefore, even if house temperature was maintained at a moderately lower level than their requirement in order to save the fuel oil, no greater retardation of berry growth was found.

R. Isoda (Hiroshima)

ZÁRUBA, F., JAMBOŘOVÁ, E.: **Adaptierung der Weingärten und des Rebschnitts für die mechanische Traubenlese** · Adaptation of vineyards and pruning for mechanical grape harvest (slowak.)

Vinohrad (Bratislava) **20**, 54—55 (1982)

Durch eine stärkere Konzentration, Spezialisierung und Intensivierung des tschechoslowakischen Weinbaues wurde eine Umstellung der Erziehungen erforderlich. Für eine mechanisierte Traubenlese sind Erziehungsformen mit Guyot-Schnitt, einstämmige Formen mit einseitigem oder beidseitigem Kordon und der Arcure-Schnitt mit einseitigem oder doppelseitigem Halbbogen besonders geeignet. Bei der letztgenannten Erziehungsform werden die Fruchtrieb-Euden eines Halbbogens nicht zu Boden, sondern in eine horizontale oder halbkreisförmige Lage gerichtet und angebunden. Hiermit soll bezweckt werden daß eine zu starke Unterdrückung der Polarität gemindert und daß das Wachstum der Fruchtriebe in günstigere Lage für mechanische Traubenlese gebracht wird. Bei allen Erziehungsformen ist ein sorgfältiges Anbinden des Fruchtholzes für die nicht mechanische Traubenlese von großer Wichtigkeit.

P. Slamka (Trier)

F. BODEN

AICHNER, M., HUBER, W.: **Ergebnisse von Bodenuntersuchungen im Obst- und Weinbau** · Results of soil analyses in pomiculture and viticulture

Obstbau Weinbau (Bozen) **19**, 123—125 (1982)

Authors interpret the results of soil analyses carried out on a large scale in the Institute for Agriculture in Laimburg. Concerning humus, they observed a remarkable improvement during the last years as a consequence of intensified organic manuring. Concerning P_2O_5 and K_2O , either extremely high or extremely low values were ascertained. Samples coming from vineyards often showed high Mg contents, those coming from fruit-growing farms often had too high B contents. Soil analyses are recommended to calculate exactly the fertilizer requirement.

G. Mayer (Klosterneuburg)

EIBACH, H.: **Die vesikuläre-arbuskuläre Mykorrhiza der Rebe** · Vesicular-arbuscular mycorrhizae of grapevine

Diss. Inst. Obst- Gemüse- Weinbau, Univ. Hohenheim, Stuttgart-Hohenheim, 93 S. (1982)

In this thesis, the effect of vesicular-arbuscular (VA) mycorrhizae on growth and phosphate uptake of grapevine and the influence of different parameters on the efficiency of the symbiosis was investigated. VA mycorrhizae are widespread in West Germany and could be detected in all samples taken. Inoculation experiments on seedlings and ungrafted and grafted plants of different cvs. resulted in longer shoots (average increase 56 %) as well as in the production of more (32 %) and bigger (70 %) leaves. It was found that the extent of mycorrhizal infection is negatively correlated with the phosphate content of the soil; however, plants infected with VA-mycorrhizae accumulated more P than P-fertilized plants. These results confirm that the beneficial effect of the mycorrhizal infection on plant growth is the consequence of an increased P uptake. Other parameters influencing the success of the symbiosis were the type of soil, the species of mycorrhizae used for the inoculation and the kind of fungicide applied.

E. Bosshard-Heer (Wädenswil)

G. ZÜCHTUNG

HOFFMANN, K. M.: **Traminer, Gewürztraminer und Muskateller. Die Lebensgeschichten der klassischen Bukettsorten** · Traminer, Gewürztraminer and Muskateller. The biographies of the classic bouquet-rich cultivars
Bad. Winzer (5), 193—208 (1982)

Author reports in an instructive way on the classic bouquet-rich cvs., which have hardly been surpassed in delicacy of bouquet and fineness of the aroma to date. In particular, the following subjects are treated: parentage, origin and denomination; synonyms and varieties; clone selection and cross-breeding; description of cv. and production area; range of distribution; wines; characterization of genetic progeny.
B. H. E. Hill (Lauffen)

MEREDITH, C. P., LIDER, L. A., RASKI, D. J., FERRARI, N. L.: **Inheritance of tolerance to *Xiphinema index* in *Vitis* species** · Die Vererbung der Toleranz gegen *Xiphinema index* bei *Vitis*-Arten

Amer. J. Enol. Viticult. 33, 154—158 (1982)

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

Um die genetischen Grundlagen des Resistenzverhaltens von Reben gegen den Nematoden *Xiphinema index* aufzuhellen, wurden Kreuzungen zwischen *X.*-toleranten und -anfälligen Rebarten bzw. Zuchtsorten durchgeführt. Aufgrund der Aufspaltungsverhältnisse der Sämlinge werden 2 genetische Modelle der Toleranz gegen *X. index* zur Diskussion gestellt: 1. Die Toleranz ist durch ein einziges dominantes Allel bedingt (AA oder Aa = tolerant, aa = anfällig). 2. Die für die Toleranz verantwortlichen Gene sind an 2 Orten lokalisiert. Jedes dieser beiden Genpaare kann für sich allein Toleranz bewirken, und zwar erfolgt ihre Ausprägung im einen Falle dominant (AA- oder Aa-), im anderen Falle rezessiv (-bb). Eine Entscheidung zwischen den beiden Modellen ist sowohl wegen Unsicherheiten der Bonitierung als auch wegen zu geringer Sämlingszahlen nicht möglich. Aus den Daten geht jedoch hervor, daß die Toleranz gegen *X. index* bei einer Reihe von Elternarten heterozygot bedingt sein muß.
G. Rilling (Geilweilerhof)

STEIN, U., BACHMANN, O.: **Anfälligkeit verschiedener Rebsorten gegenüber Spätfrösten** · Effect of spring freeze on different grapevines (m. engl. Zus.)

Wein-Wiss. 37, 326—332 (1982)

BFA f. Rebenzücht. Geilweilerhof, Siebeldingen

Authors observed the effects caused by spring frost on 5 grapevine cvs. in 1981. These effects were simulated by artificial freezing using one-bud cuttings in 1982. Besides temperature, the amount of damage is depending on the phenological development of the growing buds, but also on the duration of freezing conditions. Concerning the grape cvs., Authors observed that the cvs. resistant to winter cold (Rhinerlesling, Kerner) are not so resistant to spring frost as the cvs. sensitive to winter cold (Bacchus, Optima). Müller-Thurgau showed the highest resistance to cold under laboratory conditions, but medium resistance under outdoor conditions.
G. Mayer (Klosterneuburg)

H. PHYTOPATHOLOGIE

AGULHON, R., PAYAN, J. J., LAURENT, J. C., MOLOT, B., ROZIER, J. P., SANCHEZ, G.: **La lutte contre l'oïdium de la vigne** · Control of powdery mildew on grapevine

Vignes et Vins (Paris) (309), 45—49 (1982)

The effect of the 2 new fungicides Bayleton 5 and Rubigan 4 and of the sulphur compound Thiovit on powdery mildew was evaluated in 2 vineyards. 2 spraying schedules, which differed mainly in the intervals between treatments, were followed. The disease incidence was estimated on leaves in June, on grapes in August and on wood after leaf fall. The results showed no or only very slight differences between the 3 fungicides. In 1 vineyard, it was observed that the population of the spider mite was significantly reduced by all treatments.
E. Bosshard-Heer (Wädenswil)

ALL, J. N., SAUNDERS, M. C., DUTCHER, J. D.: **Control of the grape root borer**
 Bekämpfung von *Vitacea (Paranthrene) polistiformis* (HARRIS)
 Eastern Grape Grower Winery News 8 (2), 42—43 (1982)

The grape root borer, *Vitacea polistiformis* (HARRIS), is the most important pest of grapes in the southeastern United States. None of numerous commercial grape cvs. is immune to the pest, but infestations are reduced in muscadell as compared to bunch grapes. Vines are susceptible to the borer at the time of planting, and destruction of the root system progresses for several years. Since a single larva feeding on a vulnerable part of the root system can reduce yield by 50 %, an optimum control program should be aimed at (i) preventing young larvae from reaching the roots, and (ii) controlling older larvae infesting the roots, by soil fumigation. An insecticide barrier on the soil surface is directed at the larvae freshly hatched from eggs that are laid singly on weeds, grasses or grape leaves and drop to the ground. The young larvae immediately bore into the soil in search of grape roots. Authors suggest intense chlorpyrifos sprays (up to 1 gal/vine) under the trellis (3 sprays/year), weed control, close cutting of cover crops, mounding of soil, and use of plastic mulches under the trellis. Insecticides do not penetrate deeper than 3—4" to the soil. Ethylene dichloride — injected 6—10" deep into the soil, 13—20 injections/vine — produced complete control of subterranean populations.
 K. R. S. Ascher (Bet Dagan)

ASHIHARA, W.: **Die jahreszeitliche Entwicklung des „Rebbohrers“** (*Xylotrechus pyrrhoderus* BATES) · Seasonal life history of the grape borer, *Xylotrechus pyrrhoderus* BATES (japan. m. engl. Zus.)
 Bull. Fruit Tree Res. Sta. (Akitsu, Hiroshima) Ser. E (4) 91—112 (1982)

Die japanische Cerambycidae-Art *Xylotrechus pyrrhoderus* wird durch die Fraßstätigkeit ihrer Larven unter der Rinde von Rebtrieben schädlich, wobei die oberen Triebteile verwelken [Ref.]. Jährlich tritt eine Generation auf. Messungen an Larven aus Laborzuchten zeigten, daß die einzelnen Larvenstadien aufgrund der Kopfkapselgröße unterschieden werden können. Die Anwendung dieser Diagnosekriterien auf Freilandpopulationen ergab, daß sich von Ende September bis zum Entwicklungsstillstand Ende November durchschnittlich 4 Larvenstadien entwickelten. Die überwinterten Larven, die auch dem 3. und 5., vereinzelt sogar dem 2. und 6. Larvenstadium angehören konnten, setzten Anfang März ihre Entwicklung fort. Die Anzahl der Larvenstadien scheint zwischen 6 und 8 zu schwanken. Die Vorpuppenphase dauerte etwa 6 d. Die Verpuppungsdauer betrug 10—14 d (Juli/August). Die frischgeschlüpften Käfer verweilten noch 9—12 d in der Verpuppungszelle, ehe sie sich eine Öffnung ins Freie nagten. Paarung und Eiablage erfolgten unmittelbar danach. Die Ende August/Anfang September abgelegten Eier benötigten etwa 7 d zu ihrer Entwicklung; aus den Ende September abgelegten Eiern krochen die Larven nach 13 d aus.

G. Rilling (Geilweilerhof)

BLANKENAGEL, H.-J., SEITZ, B.-J.: **Die Vogelarten der Kaiserstühler Weinberge im Herbst — Untersuchungen zum Artenspektrum und zu Fraßschäden** · The birds in the vineyards of Kaiserstuhl during fall — studies concerning the species and the damages (m. engl., franz. Zus.)
 Wein-Wiss. 37, 246—257 (1982)

Von September bis Ende Dezember 1979 und 1980 wurden in 4 13—30 ha großen Beobachtungsgebieten — nicht, gering und vollständig flurbereinigt — die vorkommenden Vogelarten registriert und ihr Verhalten beobachtet. Insgesamt wurden 37 Arten verzeichnet: am häufigsten traten Star (27,5 %), Singdrossel (14,5 %) und Buchfink (14,4 %) auf. Traubenbeeren wurden hauptsächlich von Star, weniger häufig von Singdrossel und Amsel, selten von Rotdrossel, Fasan und Rabenkrähe gefressen. Im Beobachtungszeitraum wurden, aufgrund von Schätzungen, nur geringe Fraßschäden ermittelt. Schäden durch Stare entstehen in erster Linie durch Festkrallen in den Trauben und Abschütteln von Beeren beim Auffliegen. Amsel und Singdrossel fliegen vor allem vom Waldrand oder von Gebüsch in die Weinberge ein, weshalb sie hauptsächlich hier schädlich werden. Stare bevorzugen offenes Gelände; aus diesem Grund sind flurbereinigte Weinberge besonders starenfraßgefährdet. Die bislang praktizierten Schutzmaßnahmen gegen Vogelschäden werden diskutiert. Um über die Rentabilität solcher Maßnahmen entscheiden zu können, ist die Entwicklung einer quantitativen Methode zur Erhebung von Fraßschäden erforderlich.
 G. Rilling (Geilweilerhof)

BRELIE, D. VON DER, NIENHAUS, F.: **Histological and cytological studies on the infectious leafroll disease of the grapevine** · Histologische und cytologische Untersuchungen über die infektiöse Blattrollkrankheit der Weinrebe (m. dt. Zus.)

Z. Pflanzenkrankh. Pflanzensch. **89**, 508—517 (1982)

Inst. Pflanzenkrankh., Univ. Bonn

Comparative studies by light and electron microscope were carried out on healthy and leafroll-infected tissue. Histological and cytological changes found in leafroll-diseased grapevines, such as: in root tissue — large masses of starch and tannins seen in the phloem, and partly degenerated xylem; in shoots — deformed and undeveloped cambium with large amounts of tannins. The presence of fibrous masses in phloem, which could be stained with toluidine blue, might indicate the presence of high amounts of ribonucleic acid. — All these histological changes indicate damaging effects in the vascular bundles, which lead to early senescence of leaves and degenerations. Similar reactions are caused by other pathogens, which invade the vascular system in grapevines and other plants.

E. Tanne (Bet Dagan)

BRENDEL, G.: **Pflanzenbehandlungsmittelkombinationen und Brüheaufwand. Untersuchungen über den Einfluß verschiedener Pflanzenbehandlungsmittelkombinationen mit unterschiedlichem Brüheaufwand — 1000 l/ha = HV-Verfahren und 100 l/ha = LV-Verfahren — im weinbaulichen Pflanzenschutz** · Pesticide combinations and spray amounts. Investigations on the effect of various pesticide combinations with different spray amounts — 1000 l/ha = HV-treatment and 100 l/ha = LV-treatment — in viticultural plant protection.

Dt. Weinbau **37**, 436—438 (1982)

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

The usual methods of controlling diseases by pesticides require important expenditures of work and spray solutions. The realized experiments should improve the application technique to increase the procedure's economy, and to reduce the quantity of active ingredients and solution, especially to avoid high stresses to the environment. In a vineyard cultivated with the cv. Müller-Thurgau, the effect of 10 spray combinations — with 2 solution doses each — was examined on *Oidium tuckeri*, *Plasmopara viticola*, *Botrytis cinerea* and spider mites (Tetranychidae). It is possible to reduce the solution dose from 1000 l/ha to 100 l/ha (constant dose of active ingredients) without declining the protection success. — The employment of Bayleton special instead of sulphur dust increases the population of spider mites as well as the *B. cinerea* infection. In consequence of their hardening effects on the plant tissue, the Cu containing preparations Wacker 83 V and Turbotal cause in combination with special botryticides additional decreases of *B. cinerea* infections.

B. H. E. Hill (Lauffen)

BRÜCKBAUER, H.: **Nachweis des Luzernmosaik-Virus (alfalfa mosaic virus — AMV) in Reben mittels krautiger Testpflanzen** · Evidence of alfalfa mosaic-virus (AMV) of grapevines by inoculating herbaceous test plants (m. engl. Zus.)

Wein-Wiss. **37**, 234—245 (1982)

Abt. Virol., LLFA f. Landwirtschaft. Wein- Gartenbau, Neustadt/Weinstr.

Evidence — obtained by different workers — on the symptoms caused by mechanical inoculation of Arabis mosaic virus to herbaceous plants is compared. The isolate of AMV from grapevine used in these experiments caused distinct symptoms on *Phaseolus vulgaris* and *Vicia faba* and indistinguishable symptoms on different *Chenopodium* species (which could be confused with symptoms of other ringspot viruses of grapevine). — Author suggests a more detailed investigation to determine the presence of different strains of AMV in grapevine.

E. Tanne (Bet Dagan)

BOURQUIN, H. D., MADER, H.: **Botrytisbekämpfung mit Dicarboximiden trotz Resistenz?** · Control of *Botrytis* with dicarboximides in spite of resistance?

Rebe u. Wein **35**, 264—270 (1982)

Since dicarboximide-resistant *Botrytis* strains were detected a few years ago, the discussion is going on if these fungicides should still be applied. Numerous field trials with varying treatment

schedules have been conducted since 1976 by the 'Arbeitskreis Rheinland-Nassau'; Authors try to interpret the results and to give recommendations on the most efficient way of controlling *Botrytis* today. The comparison of the climatic and phenological data of the years 1976—1981 indicate that it is very difficult to answer the question if the insufficient effect of the botryticide treatments is due to an increasing disease pressure or to the build-up of resistance against the dicarboximides. The results of the over 90 trials on Riesling and Müller-Thurgau show that the effect of the dicarboximides is decreasing since 1979. It is recommended to stop a further build-up of resistance and to promote the resensibilization of the *Botrytis* strains by using other fungicides or by reducing the number of dicarboximide treatments. *E. Bosshard-Heer* (Wädenswil)

CUCUZZA, J. D., SALL, M. A.: **Chemical control of *Phomopsis* grapevine cane and leaf spot disease** · Chemische Bekämpfung der durch *Phomopsis* erzeugten Holz- und Blattfleckenkrankheit der Rebe

Calif. Agricult. **36** (2—3), 6—8 (1982)

Dept. Plant Pathol., Univ. California, Davis, Calif., USA

The cane and leaf spot disease of grapes caused by *Phomopsis* is known in the Central Valley of California since 1935. In years when spring rains occur after shoot growth begins, the disease can become severe. The life cycle of the fungus and the symptoms are described as well as the methods to control the disease. Field plot studies were conducted during 1979 and 1980 to investigate the effect of dormant treatments or foliar protectants on inoculum levels, disease severity and yield of infected vines. It was found that dormant treatments (applied at least 4 weeks after pruning and before bud break) with sodium arsenite or dinoseb reduced the inoculum and disease severity, and foliar treatment (applied just after bud break but before spring rains) with captan was effective in suppressing disease symptoms. It is recommended to strictly follow label directions for the application of sodium arsenite and dinoseb, and restrictions of wineries on the acceptance of grapes from vines which have been treated with sodium arsenite are mentioned.

E. Bosshard-Heer (Wädenswil)

CUCUZZA, J. D., SALL, M. A.: ***Phomopsis* cane and leaf spot disease of grapevine: Effects of chemical treatments on inoculum level, disease severity, and yield** · *Phomopsis* an Holz und Blättern von Reben: Wirkung chemischer Behandlungen auf Infektionsgrad, Krankheitsausmaß und Ertrag

Plant Disease (St. Paul) **66**, 794—797 (1982)

Dept. Plant Pathol., Univ. Calif., Davis, Calif., USA

A field study to show the effect of 3 chemical treatments on the severity of *Phomopsis viticola* infection on *Vitis vinifera* cv. Tokay was carried out over 2 years at Lodi, California. The measure of fungal activity was based on the number of pycnidia per cm² capable of exuding spores following hydration, and disease severity was based on an index of lesion numbers on leaves and shoots. Good correlation was found between pycnidial numbers and disease severity. Sodium arsenate and dinoseb applied as dormant treatments were effective in suppressing pycnidial activity and hence inoculum level, but captan applied as a foliar protectant at 100 % bud burst was not. However, all 3 were found to be able to depress disease severity. Sodium arsenite was the most effective treatment showing a 15 % yield increase over control vines in a year of high disease severity. There was no carry-over effect of the chemicals from one season to the next; effective control was dependent on routine yearly applications. *M. Barlass* (Merbein)

GAINA, B. S., LAFON-LAFOURCADE, S., DUBOS, B.: **Incidence oenologique du traitement biologique de la Vigne par *Trichoderma viride* à l'égard de la pourriture grise** · Enological implications of the biological control of grey mould of grapes by *Trichoderma viride* (m. engl, dt., span., ital. Zus.)

Connaiss. Vigne Vin (Talenç) **16**, 87—95 (1982)

Cent. Rech. Sci. Vitivinic. Moldavie, Kichinev, UdSSR

Trichoderma viride, now being used to control grey mould in the vineyard, totally destroyed the mycelium of *Botrytis cinerea*, *Aspergillus carneus*, *Penicillium frequentans*, and *P. roqueforti* growing separately or together in must of Salins du Midi with a sugar content of 70 g/l and pH 3.2. An ultrasonic treatment of mycelium of *T. viride* had only slight effects on the fermentations of must by *Saccharomyces cerevisiae*, *Schizosaccharomyces* and *Leuconostoc oinos*, as measured by CO₂ evolu-

tion, optical density, total sugar fermented, dissolved oxygen, pH, yeast, biomass, and acidity. By contrast, ultrasonicates of the mycelia of *B. cinerea*, *A. carneus* and *P. frequentans* had considerable adverse effects on fermentation, and laccase activity was 5–7 × higher than in a check fermentation. O₂ consumption was high following the addition of ultrasonicates of *B. cinerea*, *A. carneus* and *P. frequentans* to the must, but not after the addition of *T. viride*. *T. viride* did not interfere with lactic and malo-lactic fermentations. Wines produced in the presence of *T. viride* were clearer as the result of its hydrolase activity, and there was no detrimental effect on flavour, aroma or colour. It is concluded that *T. viride* may be used safely in the field without risk to the quality of wine.

W. R. Jarvis (Harrow)

GIORGESSI, F., BORGIO, M., EGGER, E.: **Preliminary results on the influence of irrigation methods on *Plasmopara viticola* and *Botrytis cinerea* attacks to grapevine** · Vorläufige Ergebnisse über den Einfluß von Bewässerungsmethoden auf den Befall der Reben mit *Plasmopara viticola* und *Botrytis cinerea* (ital. m. engl. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 225–235 (1982)

Ist. Sper. Viticolt., Conegliano, Italien

Experimental trials to assess the influence of irrigation on the incidence and severity of downy mildew (*Plasmopara viticola*) and grey mould (*Botrytis cinerea*) attacks to grapevine were carried out in a vineyard of cv. Merlot near Treviso (northern Italy). Besides the type of irrigation system (i.e. drip and sprinkling), the effect of watering intervals (every 2 and 7 d) and seasonal irrigation volumes (500, 1000 and 2000 m³/ha) was considered. The vineyard was protected against downy mildew with conventional fungicides (Bordeaux mixture and Zineb) according to the farm's schedule, whereas no attempt was made to control grey mould. The results of the 3-year trials were the following: (i) sprinkling irrigation increases remarkably both downy mildew and grey mould infections, especially if seasonal water volumes are higher than 1000 m³/ha. In fact, with sprinkling irrigation, control of grey mould is advisable in any case, i.e. also if seasonal water volumes as low as 500 m³/ha are used; (ii) drip irrigation does not affect appreciably the incidence of neither disease. However, with seasonal irrigation volumes above 1000 m³/ha, there was a non statistically significant tendency to favour fungal attacks.

G. P. Martelli (Bari)

HILL, G. K.: **Untersuchungen über die enzymatische Aktivität von *Phomopsis viticola* SACC., dem Erreger der Schwarzfleckenkrankheit** · Experiments of enzymatic potential of *Phomopsis viticola* SACC., the cause of dead-arm disease (m. engl. Zus.)

Wein-Wiss. **37**, 333–339 (1982)

LLVA f. Landwirtschaft. Wein- Gartenbau, Oppenheim

The enzymatic activity of culture filtrates of *Phomopsis viticola* grown on different substrates was tested. A low pectolytic activity on pectin substrate, but not on others could be demonstrated. On plant tissue media proteolytic, amyolytic and cellulolytic activity was found, the latter could be inhibited by extracts of different plant parts. The inhibitory potential of these extracts was, however, not correlated with the susceptibility of the organs.

R. Blaiich (Geilweilerhof)

HOPP, H., JÖRGER, V.: **Eine im deutschen Weinbau neue Bakteriose** · A new bacteriosis in German vineyards (m. engl. Zus.)

Wein-Wiss. **37**, 119–126 (1982)

Staatl. Weinbauinst., Freiburg/Br.

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

D. H. Lorenz (Neustadt)

JANKULOVA, M., ESKENAZY, M., BAKARDZHIEVA, N., GEORGIEVA, P.: **ELISA for the quantitative determination of grapevine fanleaf virus** · Quantitative Bestimmung des Fanleaf-Virus der Weinrebe mit dem ELISA-Test (m. dt. Zus.)

Z. Pflanzenkrankh. Pflanzensch. **89**, 18—29 (1982)

Inst. Zasht. Rast., Kostinbrod, Bulgarien

ELISA was compared with the results obtained by the *Chenopodium quinoa* assay of fanleaf-virus. There was a correlation of 99 % and 100fold increase in sensitivity. The optimal conditions of incubation times and concentrations of antiserum and antibody at different temperatures were studied. Peroxidase is considered superior to alkaline phosphatase as conjugation enzyme.

R. Blaich (Geilweilerhof)

KOVAC, V.: **Production de laccase par *Botrytis cinerea* sur milieu de culture artificiel** · Production of laccase by *Botrytis cinerea* on an artificial culture medium

Progr. Agric. Vitic. (Montpellier) **99**, 407—414 (1982)

Fac. Technol., Novi Sad, Jugoslawien

An artificial culture medium was developed which greatly enhanced laccase production as compared to sterilized grape juice. 27 *Botrytis* strains were compared, the laccase production differed from 0—206 units/g of mycelial dry weight, whereas the production of mycelium varied only between 0.44 and 1.2 g/cultural unit.

R. Blaich (Geilweilerhof)

LAKSO, A. N., PRATT, Ch., PEARSON, R. C., POOL, R. M., SEEM, R. C., WELSER, M. J.: **Photosynthesis, transpiration, and water use efficiency of mature grape leaves infected with *Uncinula necator* (powdery mildew)** · Photosynthese, Transpiration und Wassernutzungsvermögen von ausgewachsenen Rebblättern mit Infektionen durch *Uncinula necator* (falscher Mehltau)

Phytopathology **72**, 232—236 (1982)

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

Photosynthesis and transpiration of mature leaves of Riesling and Concord cvs. were related to the levels of infection by *Uncinula necator* that developed in the field. Photosynthetic rate was reduced more in Riesling at similar levels of infection, due to greater palisade layer destruction. Transpiration was relatively unaffected by infection, thus, water use efficiency in both cvs. decreased with increasing infection. In Riesling both visual ratings of tissue necrosis and *U. necator* infection gave similar estimates of damage, whereas in Concord the 1st method provided better estimates.

R. Blaich (Geilweilerhof)

MARRO, M., GIAMBATTISTA, N. DI, VERCESI, S.: **Patterns of sealing in wine-canesh wounded by hail** · Vernarbungsweise von Hagelschäden an Rebtrieben (ital. m. engl. Zus.)

Vignevini (Bologna) **9** (1—2), 59—63 (1982)

Ist. Colt. Arbor., Univ. Mailand, Italien

In order to better elucidate the damages caused by hail in grapevine canes, Authors investigated the events that led to sealing in canes belonging to different cvs. 2 distinct patterns of sealing were observed from a histological point of view. Strong canes — characterized by a high wood/pith rate — sealed better and formed 2 layers of sealed tissue with well differentiated vascular elements. Weak canes, showing a greater amount of pith, formed only a single layer of sealed tissue. However, the response to hail wound appeared different in the different cvs. Some cvs. (Barbera, Riesling, Pinot) showed a better wound sealing effectiveness than others, e.g. Malvasia. The histological results strengthen similar observations made directly in the field by grape growers.

P. Bonfante-Fasolo (Turin)

MOULIN, J.-P.: **Influence de quelques produits phytosanitaires sur les fermentations** · Influence of some plant protection products on wine fermentation

Vignerons Champ. (Épernay) **103**, 414—423 (1982)

8 plant protection products (3 products used against powdery mildew, 2 acaricides and 3 botryticides) were added in 2 concentrations to the decanted must, which had been previously mixed with

yeast. The must samples were stored at 13 °C in the cellar or at 20 °C in the laboratory, where the course of the fermentation could be followed by daily determinations of the weight decrease. It was found that the proceeding of the fermentation process was not influenced by the different pesticides added. Analysis of the differently treated samples gave comparable values regarding the content of alcohol, sugar and volatile acid.
E. Bosshard-Heer (Wädenswil)

MUR, G., BOUBALS, D.: **La bactériose des greffés-soudés. Cause d'échecs dans les plantations de vigne** · Bacterial disease of grafted vines. Reasons for failures in vine plantations

Progr. Agric. Vitic. (Montpellier) **99**, 342—348 (1982)

Ecole Natl. Sup. Agron. (INRA), Montpellier, Frankreich

A disease characterized by a more or less extensive necrosis of the scion tissue, beginning at the graft union, is described. It first appears in March, when the grafted vines are planted in the nursery or subsequently, when they are lifted for sale to the vine growers, but it can appear even 2 or 3 years after transplantation. In either case, the shoots develop irregularly and later die off. In particular, the vine varieties Grenache and Alicante are susceptible, while Carignan is practically resistant. A bacterium was isolated from the necrotic zones which, in reinoculation tests, gave positive results. Authors maintain that the disease is of bacterial origin and suggest a series of preventive measures including the repeated use of Bordeaux mixture both in the mother plantation and in the nursery.
M. Bisiach (Mailand)

OBERHOFER, H.: **Wie giftig sind Pflanzenschutzmittel für Fische?** · How toxic are plant protection products to fish?

Obstbau Weinbau (Bozen) **19**, 177—181 (1982)

As the fruit growing areas of South Tyrol are rich in brooks, rivers, drains, lakes and swamps, the contamination of these waters with pesticides cannot be completely prevented. Therefore, it is important that fruit producers and their counsellors are informed of the possible toxic side effects of the pesticides they use on fish and fish food. The publication includes lists of insecticides, acaricides, fungicides and herbicides and their toxicity to different species of fish and fish food. Several groups of pesticides and their degree of toxicity are discussed extensively and alternative, less toxic products are mentioned. Hints are given how unnecessary contamination of the waters can be prevented.
E. Bosshard-Heer (Wädenswil)

PEARSON, R. C.: **Protection of grapevine pruning wounds from infection by *Eutypa armeniaca* in New York State** · Schutz von Schnittwunden bei Reben vor der Infektion durch *Eutypa armeniaca* im Staate New York

Amer. J. Enol. Viticult. **33**, 51—52 (1982)

Dept. Plant Pathol., N.Y. State Agricult. Expt. Sta., Cornell Univ., Geneva, N.Y., USA

Cutting wounds on vines of 3 cvs. of *Vitis labruscana* were either not inoculated, inoculated with ascospores of *Eutypa armeniaca* or inoculated and treated with a benomyl suspension. The fungus was recovered 18 months later in 75—100 % of the inoculated wounds, in 15—36 % of the not inoculated wounds and in 0—15 % of the treated wounds. Benomyl gave good protection from the infection of cutting wounds by *E. armeniaca*, if it was applied as a protective treatment as soon after pruning as possible and prior to the next rain.
E. Bosshard-Heer (Wädenswil)

PETZOLD, C. H., MOLLER, W. J., SALL, M. A.: **Grapevines show seasonal differences in susceptibility to *Eutypa*** · Reben zeigen saisonbedingte Unterschiede in der Anfälligkeit gegenüber *Eutypa*

Calif. Agricult. **36** (2—3), 4—5 (1982)

Dept. Plant Pathol. Univ. California, Davis, Calif., USA

Although several Californian plants are susceptible to *Eutypa armeniaca*, including *Ceanothus* spp., *Prunus virginiana*, and *Arctostaphylos* spp. they are not usually pruned and are not considered important inoculum sources. On grapevine, fruiting bodies are found only in areas receiving more than 380 mm of rain annually, and spore discharge occurs after a rain of 1.25 mm. Many spores are discharged during autumn and spring rains and fewer during winter rains. However, the susceptibility of pruning wounds also determines the correct time of the year for pruning. Pruning

wounds made on one-year-old canes on December 19 remained very susceptible to inoculation with ascospores for at least 2 weeks, those made on February 6 remained very susceptible for only 1 day and rapidly lost susceptibility thereafter, while wounds made on March 12 were relatively unsusceptible. It is suggested, therefore, that at least for one-year-old wood, pruning should be done in late winter, rather than in early or mid-winter.
W. R. Jarvis (Harrow)

REMUND, U., SIEGFRIED, W.: **Zur Sauerwurm-*Botrytis*-Beziehung** · Correlation between grape berry moth and *Botrytis*

Schweiz. Z. Obst- Weinbau **118**, 277—285 (1982)

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

During the 1980 and 1981 seasons, several grape cvs. growing in 37 different vineyard sites of German Switzerland were investigated with regard to the correlation between flight intensity of the 2nd generation of grape berry moth (*Eupoecilia ambiguella*) with the resulting appearance of larvae (Sauerwurm) and the infection rates of *Botrytis*. There was no very clear correlation between flight intensity (measured by pheromone traps) and larval attack. *Botrytis* infection rates of attacked bunches were 5.5 × higher than those of unattacked ones. With regard to expected *Botrytis* infections, a limiting value of 5—10 % of larval attack was determined depending on location and variety. Besides several insecticides, *Bacillus thuringiensis* was tested as a control agent. Provided that the flight intensity was not too high, a good performance of *B. thuringiensis* could be achieved. Further investigations are proposed.
D. H. Lorenz (Neustadt)

SALL, M. A., WRYNSKI, J.: **Perennation of powdery mildew in buds of grapevines** · Überwinterung des echten Mehltaus in den Knospen der Reben

Plant Disease (St. Paul) **66**, 678—679 (1982)

Dept. Plant Pathol., Univ. Calif., Davis, Calif., USA

Although cleistothecia of *Uncinula necator* are abundant on all cvs. of grapevine in California, the overwintering of the powdery mildew is attributed to perennating mycelium on leaf and shoot primordia in buds, more frequently in buds on spurs than on vine arms. The buds on these infected shoots, called flags, tended to open later than uninfected buds, and severely-affected flag shoots are believed to die soon after the onset of growth. 65 % of vines of cv. Carignane had infected perennating buds, and they tended to have mildew flags in successive years. Infections were found consistently on 2- or 3-bud spurs. Mildew flags liberated conidial inoculum shortly after the onset of growth, and it is suggested that the recommendation to apply sulphur when the shoots attain 15 cm is too late to prevent secondary infection.
W. R. Jarvis (Harrow)

SAVAGE, St. D., SALL, M. A.: **Vineyard cultural practices may help reduce *Botrytis* bunch rot** · Kulturtechnische Maßnahmen als Mittel zur Reduzierung des *Botrytis*-Befalls der Trauben

Calif. Agricult. **36** (2—3), 8—9 (1982)

Dept. Plant Pathol., Univ. California, Davis, Calif., USA

The development of *Botrytis cinerea* was hitherto thought to be influenced by microclimatic factors. Therefore, experiments were carried out to test the potential use of certain standard vineyard practices for *Botrytis* bunch rot control, including 3 alternative options: cross-arm or 2-wire trellis; midseason hedging or no hedging; spray or no spray (against "early *Botrytis*"). Tests were carried out in a Chenin blanc vineyard, Yontville, Calif., during the 1978, 1979 and 1980 seasons. Vines with 2-wire trellis which were both hedged and sprayed (Benlate and Captan in tank mix, once when the clusters started to bloom) had the lowest level of disease (approx. 8 %) compared with that of vines subjected to cross-arm trellis, but with no spray and no hedging (approx. 28 % infected clusters). However, the advantage of hedging was complicated by the fact that a delay of maturity of 1 ° Brix was observed in the hedged vines.
D. H. Lorenz (Neustadt)

SCIENZA, A.: **Derzeitiger Kenntnisstand über Ursachen und Behandlung der Stiel-lähme** · Actual state of knowledge concerning causes and treatment of stiel-lähme (ital.)

Vignevisini (Bologna) **9** (4), 15—30 (1982)

Ist. Colt. Arbor., Univ. Catt., Piacenza, Italien

Eine physiologische Störung infolge gestörten Ionengleichgewichts in der Rebe führt zu Nekrosen am Stielgerüst, wobei neben K und Mg insbesondere dem Ca entscheidende Bedeutung für die Aufrechterhaltung der Funktionsfähigkeit der Zellwand zukommt. Alles was die Aufnahmefähigkeit des Ca hemmt, fördert die Stiellähmbereitschaft. Alle Erklärungsversuche über das Zustandekommen der Krankheit vermögen nur in ihrer Gesamtheit ein angemessenes Bild zu vermitteln. Geeigneten Pfropfkombinationen insbesondere unter zur Stiellähme neigenden Bedingungen, die die Ca-Versorgung der Rebe begünstigen, wird in Hinkunft vermehrte Bedeutung beizumessen sein. Für die Praxis wird zwecks frühzeitiger Vermeidung von Risikofaktoren eine ausgeglichene Kulturmethode bei Vermeidung übermäßiger Düngung und Bewässerung zu beachten sein. Nährstoffspritzungen sollten unter Einbeziehung von Mg nur im Bedarfsfall erfolgen.

V. Hartmair (Leverkusen)

SHANMUGANATHAN, N., FLETCHER, G.: **Enzyme-linked immunosorbent assay to detect fanleaf virus in grapevines grown in containers** · ELISA-Test zum Nachweis des Fanleaf-Virus bei Topfbreben

Plant Disease (St. Paul) **66**, 704—707 (1982)

Dept. Agricult., Melbourne, Australien

Enzyme-linked immunosorbent assay (ELISA) was used for detection of grapevine leaf roll virus of infected potted plants grown in shadehouse or greenhouse. Bud and young leaf samples produced the most intense color reaction and thus appeared to contain the highest concentration of virus. Bioassays on *Chenopodium quinoa* were as efficient as ELISA in detecting GFLV in leaf samples, but failed to detect the virus in dormant buds. The success of the ELISA method in detecting the virus in dormant buds within 48 h enables to rapidly index imported grape material in the quarantine. — GFLV was also detected in leaves, internodes and roots of grapevines sampled in the spring, but not in leaf samples collected in late spring, summer and autumn. Newly forced leaf tissue gave the most intense color reaction and thus appeared to be the best source of antigen for ELISA tests.

B. Bravdo (Rehovot)

STRENG, P.: **Einjährige Erfahrungen mit der Vogelscheuche „Horifon“** · One-year experiences in using the scarecrow "Horifon"

Rebe u. Wein **35**, 333—336 (1982)

Bayer, LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

Das Horifon-Gerät gibt in einem bestimmten kurzen Rhythmus einen Scheuchton ab, der Schadvögel vertreiben soll. Amsel und Drossel reagierten allerdings nicht, während die Stare im Umkreis von 80—100 m um das Gerät verscheucht wurden. Der Preis des Geräts mit 600 DM zusätzlich einem jährlich zu erneuernden Batteriesatz zu 15 DM ist vertretbar. Das Gerät ist ohne großen Aufwand anzubringen, allerdings muß von Wohngebenden wegen der zu befürchtenden Lärmbelästigung ein Abstand von 50—100 m eingehalten werden.

Th. Becker (Deidesheim)

STRENG, P.: **Zweijährige Erfahrungen mit der Reduzierung der Brühe- und Wirkstoffmenge beim Pflanzenschutz im Weinbau** · 2-year experiences with the reduction of volume and concentration of the spray liquid for the protection of grapevines

Dt. Weinbau **37**, 1030—1033 (1982)

Bayer, LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

In 1980 and 1981, experiments with high volume (HV, 800 l/ha) and low volume (LV, 100 l/ha) applications were conducted in the vineyards of the Bayrische Landesanstalt Würzburg-Veitshöchheim on cv. Müller-Thurgau. In the LV plots, the concentration of the active ingredients was reduced to 75 % of the recommended dose. The plants were treated against downy mildew (*Plasmopara viticola*), Oidium, *Botrytis* and the 2nd generation of the grape berry moth. In this paper, the results of the 1981 experiments are discussed. Efficiency evaluations were possible only for downy mildew and *Botrytis*. LV and HV treatments proved to be equally successful against these diseases, and no influences of any treatment on taste and aroma of the wines could be detected.

E. Bosshard-Heer (Wädenswil)

TINKHAUSER, L.: **Botrytisversuch 1981 · Control of *Botrytis* in 1981**
Obstbau Weinbau (Bozen) 19, 167—168 (1982)

The activity of 6 different fungicides against grape *Botrytis* was tested in one trial on the cv. "Edelvernatsch". The botryticides were applied shortly before the touching of the berries (July 27) and 5 weeks before harvest (August 19). The effect of the different treatments was estimated on October 20. It was found that most fungicides gave adequate protection if they were applied carefully on the 2 dates mentioned. Grape weight determinations showed that the yields in the treated plots exceeded the one in the untreated plot, whereas the sugar concentration of the untreated grapes was slightly higher than that of the treated grapes. *E. Bosshard-Heer* (Wädenswil)

VANEK, G.: **Bodenschädlinge in Rebschulen und jungen Weingärten · Soil parasites in vine nurseries and young vineyards (slowak.)**
Vinohrad (Bratislava) 20, 57—58 (1982)

Komplexný Výskumný Ústav Vinohradn. Vinár., Bratislava, CSSR

In den Rebschulen und Junganlagen verursachen Maikäfer und Nematoden große Schäden. Es werden 3 Maikäferarten — *Melolontha melolontha* L., *M. hippocastani* FABR. und *Anomala vitis* F. — beschrieben und die Schäden an den Wurzeln durch den Engerlingsfraß erläutert. — Die Bodenmüdigkeit ist zum Teil dem Vorkommen von Nematoden zuzuschreiben, die in Monokulturen besonders gut gedeihen. In den Weingärten befinden sich vor allem Nematoden der Gattungen *Xiphinema*, *Rotylenchus*, *Helicotylenchus*, *Macroposthonia*, *Pratylenchus* und *Meloidogyne*. — Die Schutzmethoden gegen die Maikäfer und Nematoden werden beschrieben.

D. Pospíšilová (Bratislava)

VELASCO, B. F., KLINGNER, A. E., TITIRO, L. G.: **Microorganisms in vines and their relationship to the grape bunch rot · Mikroorganismen bei Reben und ihre Beziehung zur Traubenfäule (span. m. engl. Zus.)**

Rev. Fac. Cienc. Agrar. (Mendoza) 22 (1), 23—26 (1981)

The results of an investigation carried out in Argentina for studying the involvement of different fungi in the bunch rot of grapevine are reported. Field syndromes were observed since 1975 and the development of infections was followed by means of moist chambers and fortnightly isolations from surface-sterilized berries of 5 different cultivars, throughout the vegetative cycle until full ripening. The pathogenicity of isolated fungi was tested by artificial inoculations onto mature bunches both in the laboratory and field. Among the many fungi that were isolated throughout the season, *Botrytis cinerea* was the most widespread. It was present in flower residues where it persisted until ripening of bunches. However, *B. cinerea* was not the sole cause of rotting and, therefore, typical "grey mould" symptomatology was seldom observed. More frequently, a "sour bunch rot" developed, because of the presence of *Aspergillus* and *Penicillium* in addition to *B. cinerea*. The complex nature of these infections accounts for the unsatisfactory control of bunch rots obtained when treating with chemicals specifically active against *B. cinerea*. *G. P. Martelli* (Bari)

VERCESI, A., BISIACH, M.: **Investigations on the fluctuation of *Botrytis cinerea* inoculum potential in a vineyard · Untersuchungen über die Sporendichte von *Botrytis cinerea* in einer Rebanlage (ital. m. engl. Zus.)**

Riv. Patol. Veg. (Pavia) 18, 13—48 (1982)

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

Spore density of *Botrytis cinerea* was measured by spore traps in an Italian vineyard during 3 years. An increase was found during flowering and veraison, the maximum was found at harvest time. Rainfall increases spore density in the beginning, eventually it has a decreasing influence, whereas temperature has only a low effect. *R. Blaich* (Geilweilerhof)

VERCESI, A., MINERVINI, G., BISIACH, M.: ***Aureobasidium pullulans* (DE BARY) ARN. on *Vitis vinifera* leaves · *Aureobasidium pullulans* (DE BARY) ARN. auf *Vitis-vinifera*-Blättern (ital. m. engl. Zus.)**

Riv. Patol. Veg. (Pavia) 18, 77—81 (1982)

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

A mild alteration of grapevine leaves was observed at the beginning of summer in several vineyards of the Oltrepò Pavese (northern Italy). Yellowish spots with poorly defined margins were present on the upper side of affected leaves, to which brown discolourations of the veins corresponded on the underside of the blades. Observations with the light microscope of whole mounts of cotton blue-stained leaf tissues revealed the consistent occurrence of a fungal mycelium, primarily localized along the veins, which, when sporulating, was identified as belonging to *Aureobasidium pullulans*. The same fungus was consistently isolated from altered tissues occasionally in association with *Alternaria* sp., *Cladosporium* sp., *Epicoccum* sp. or *Phoma* sp. *Botrytis cinerea* was isolated only once. *A. pullulans* is reported in the literature as a common saprophyte normally occurring on grapevine leaves at the end of summer and in autumn. The fact that in the present instance it was so frequently found at the beginning of the vegetative cycle in association with altered leaf tissues, may indicate that under certain circumstances it can exert a weak parasitic action.

G. P. Martelli (Bari)

WICKS, T., LEE, T. C.: **Evaluation of fungicides applied after infection for control of *Plasmopara viticola* on grapevine** · Prüfung der kurativen Wirkung verschiedener Fungizide gegen *Plasmopara viticola* auf Reben

Plant Disease (St. Paul) **66**, 839—841 (1982)

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

The curative effect of 8 fungicides on downy mildew (*Plasmopara viticola*) of grapevine was compared in laboratory and field experiments. It was found that only mancozeb did not suppress sporulation when applied 3 d after the inoculation of shoots of tissue cultured plants with *P. viticola*. Metalaxyl, cyprofuran and phosethyl aluminum prevented sporulation on leaves which were artificially inoculated in the field and treated 4 d later with the different fungicides. Cymoxanil and milfuram were less effective, and mancozeb, folpet and copper oxychloride had no effect at all. When not sporulating, chlorotic lesions on naturally infected leaves were treated 17 d after the infection had taken place, only metalaxl, cyprofuran, phosethyl aluminum and milfuram significantly reduced the production of sporangia. It is concluded that some of these fungicides would allow curative treatments and, therefore, the number of applications could be reduced.

E. Bosshard-Heer (Wädenswil)

ZAZZI, A.: **Tests on the control of *Botrytis cinerea*** · Versuche zur Bekämpfung von *Botrytis cinerea* (ital. m. engl. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 413—426 (1982)

Ist. Sper. Viticolt., Conegliano, Italien

A 2-year trial, carried out in Tuscany on the control of *Botrytis cinerea* in grapevines, is described. The particular climatic conditions there favoured good results by the dicarboximide fungicides (vinclozolin, iprodione, procymidone) when applied at the end of the flowering period, about at the time of fruit setting and 25—28 d before harvest. However, modest results were obtained using dichlofluanid and alkylbenzyl dimethylammoniumchloride. None of these fungicides affected alcoholic fermentation.

M. Bisiach (Mailand)

J. TECHNIK

BÄCKER, G.: **Verbesserung der Applikationstechnik — Ansatzpunkte im Bereich der Tropfenerzeugung und der Bemessung des Trägerflüssigkeitsvolumens** · Improving the application technique — Possibilities concerning the droplet size and the carrier liquid amount

Dt. Weinbau **37**, 431—434 (1982)

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

Ziel eines ökonomischen und umwelthygienischen Pflanzenschutzes ist, die Spritzbrühemenge, d. h. die Wirkstoff- und Wassermenge herabzusetzen und gleichzeitig die Teilchenanlagerung an der Pflanze zu verbessern. Gleicher Flächenbedeckungsgrad bei Reduzierung der Aufwandmenge

von beispielsweise 1000 auf 100 l/ha soll erfahrungsgemäß eine Verkleinerung der Tropfengröße von 250 auf etwa 125 μm erfordern. Bei der Erzeugung kleiner Tropfen ist wegen der Driftgefahr ein besonders enges Tropfenspektrum wichtig, d. h. der Anteil an Tropfen mit einem Durchmesser $< 100 \mu\text{m}$ sollte besonders gering sein. Neue Feinsprühdüsen, die als Flüssigkeitsdruck-Drallzerstäuber ausgebildet sind, erfüllen diese Aufgaben nur teilweise, da sie sich schnell abnutzen und oft zu Verstopfungen neigen. Pneumatische Zerstäuber, insbesondere aber mechanische Rotationszerstäuber, sollen ein von der Drehzahl abhängiges, enges Tropfenspektrum liefern.

E. Moser (Stuttgart)

CATALANO, V., Palumbo, L.: **Die Verwendung von Drenopor bei der Weinbereitung** · Use of Drenopor when making wine (ital. m. franz. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 170—176 (1982)

Ist. Sper. Viticolt. Conegliano, Italien

Die synthetischen Fasern Drenopor sind gegenüber chemischen Einflüssen resistent, vom gesundheitlichen Standpunkt unbedenklich und als Ersatz für Asbest vorgeschlagen worden. Im vorliegenden Versuch werden 150 g Drenopor 100 kg gemischten Trauben kontinuierlich zugesetzt. Durch die Drainagewirkung der zugesetzten Fasern wird nicht nur die Ausbeute deutlich erhöht (um 1,3 %), sondern auch die Qualität des Mostes, der weniger phenolische Verbindungen und Fe enthält. Die Ergebnisse werden durch die Untersuchung der entsprechenden Weine erhärtet.

B. Weger (Bozen)

GANZELMEIER, H.: **Untersuchungen zur Anlagerung und Abtrift von Pflanzenschutzmitteln. Vergleich verschiedener Pflanzenschutzgeräte** · Investigations on the deposit and the dispersion of plant protection products. Comparison between several pest control implements

Rebe u. Wein **35**, 214—218 (1982)

Landesanst. Pflanzensch., Stuttgart

Die Ausbringung chemischer Pflanzenschutzmittel in Weinbau-Steillagen ist hinsichtlich einer gezielten Anlagerung in der Traubenzone und an den Blattunterseiten der Reben bei einer geringen Umweltbelastung problematisch. Steile oder nur sehr schwer zu befahrende Anlagen werden mit Hubschraubern aus der Luft oder von Randwegen aus mit Großraumsprüheräten, seltener mit Rückensprüheräten oder Spritzpistolen von der Rebzeile aus behandelt. Eine Bilanzierung des ausgebrachten Wirkstoffes in und außerhalb der Rebanlage läßt einen objektiven Vergleich der einzelnen Applikationstechniken zu und liefert insbesondere Kenndaten für die Güte eingesetzter Geräte. — Untersuchungen zeigten, daß mit in der Rebzeile fahrenden Feinsprüheräten etwa 60 %, mit Hubschraubern zwischen 33 und 36 %, mit der Spritzpistole ca. 28 % und mit Großraumsprüheräten durchschnittlich nur noch etwa 24 % des ausgebrachten Wirkstoffes an der Rebpflanze angelagert werden. Der am Boden abgelagerte Anteil sowie die Abtrift sind besonders bei Großraumsprüheräten, bei denen die Tropfen mit einem Luftstrom bis zu 50 m weit in die Anlage getragen werden müssen, bedenklich.

E. Moser (Stuttgart)

LIUNI, C. S., COLAPIETRA, M., ANTONACCI, D.: **The effect of irrigation technique and fertilizing on grapevine buds in warm-arid southern regions. Note V: The effect of different localized drip irrigation systems on quantity and quality of harvest** · Der Einfluß von Bewässerungstechnik und Düngung auf die Rebknospen im heiß-ariden Süden. V. Mitt.: Der Einfluß verschiedener Systeme lokalisierter Bewässerung auf Menge und Güte des Ertrages (ital. m. franz., engl. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 208—213 (1982)

Ist. Sper. Viticolt., Bari, Italien

2 different drip irrigation systems (Gilead-Acqua and Lego) as well as a dugged in-line system (also Gilead-Acqua) and a non-irrigated control were compared. 2 irrigations/week were applied from May to August. With the Lego system (above soil level) 906 m^3/ha were treated, while with the other system (both above and below soil level) only 563 m^3 were covered. Highest yields were achieved with the dug-in system, as well as with Lego (55 % more than in the control). Cluster weight was increased by 30—40 %, sugar was lowest with the Lego system (a larger quantity of water was supplied). Total acidity (g/l) was lowest in the unirrigated control (6.0) compared to over 7.0 in the other treatments. — In the dug-in line system, as well as with Lego, yields attained 200 dt/ha. However, water consumption was appreciably lower with the dug-in system.

P. Spiegel-Roy (Bet Dagan)

LIUNI, C. S., STRAMAGLIA, L., MONGELLI, V., BRANCO, L.: **The effect of irrigation technique and fertilizing on grapevine buds in warm-arid southern regions. Note VI: Localized irrigation with small, alternating jets and a low pressure system** · Der Einfluß von Bewässerungstechnik und Düngung auf die Rebknospen im heiß-ariden Süden. VI. Mitt.: Lokalisierte Bewässerung mit kleinen, wechselständigen Düsen und niedrigem Wasserdruck (ital. m. franz. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 214—220 (1982)

Ist. Sper. Viticolt., Bari, Italien

A modified irrigation system put into practice in Apulia and called irrigation system "a zampillo" (by a small jet) with low pressure (0.5 atm), localized in every 3rd or 4th row, and with the application of 20 l/h is described in detail.
P. Spiegel-Roy (Bet Dagan)

MEIER, W., BAYER, E.: **Prüfung der pneumatischen Willmespresse UP 600** · Examination of the pneumatic press Willmes UP 600 (m. engl., franz. Zus.)

Mitt. Klosterneuburg **32**, 111—116 (1982)

HBLuVA f. Wein- Obstbau, Klosterneuburg, Österreich

Die Kelterungsversuche zeigten die Vorteile der pneumatischen Willmespresse UP 600 im Vergleich zu einer Horizontalspindelkelter wie folgt: Raschere Arbeitsweise, weniger Trubgehalt, weniger Polyphenole, bessere Weinqualität bei vergleichbarer Ausbeute.
L. Jakob (Neustadt)

MICHEL, H.: **Kellerwirtschaftliche Erfahrungen beim Traubenvollerntereinsatz in den Jahren 1980 und 1981** · Enological experiences gained after mechanical harvesting in 1980 and 1981

Dt. Weinbau **37**, 953—957 (1982)

LLVA f. Landwirtsch. Wein- Gartenbau, Oppenheim

In Germany, 3 models of mechanical grape harvesters were tested under practical conditions in 1980 and 1981. Examinations with the resulting musts and wines showed that total acidity and malic acid contents were higher and K level was lower (in *Botrytis*-infected grapes only) after mechanical harvesting (m. h.) than after hand harvest. Tartar stability and SO₂ supply of wines gave no further disadvantages of m. h.
W. Flak (Wien)

NERADT, F.: **Sources of reinfections during cold-sterile bottling of wine** · Ursachen für die Reinfektion bei der Kaltsterilabfüllung von Wein

Amer. J. Enol. Viticult. **33**, 140—144 (1982)

Cold-sterile bottling of wine with fermentable sugar requests periodic complete microbiological assays to eliminate potential sources of reinfection. Results of all microbiological analyses carried out during the last 9 years have been evaluated and tabulated. The data do not only provide detailed information about various sources of reinfection but also show that cold-sterile bottling is now more reliable than a decade ago. This is due to new bottle sterilizing techniques and cork jaw heating/sterilizing devices.
O. Endres (Speyer)

PFAFF, F., BECKER, E.: **Mechanische Laubschneider ermöglichen termingerechten Laubschnitt** · Machines allow summer-pruning to be done on time

Dt. Weinbau **37**, 743—749 (1982)

LLVA f. Landwirtsch. Wein- Gartenbau, Oppenheim

Vines trained on high trellis should have tall, narrow walls of foliage to produce healthy grapes of good quality. To achieve this, the shoot tips should be cut when they start to bend over and later, the shoots should be topped when extension growth slows down. High walls of foliage are difficult to summer-prune by hand. Many makes of pruning machines are available in Germany. They have rotating or reciprocating cutting blades. Technical data for about 50 such machines are tabulated.

P. May (Adelaide)

SCHULTE-KARRING, H.: **Auswirkungen und Einsatzmöglichkeiten der Pneumatik-Bodenlockerung im Weinbau** · Effects and range of application of pneumatic ploughing in viticulture

Dt. Weinbau 37, 606—612 (1982)

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

Zur Verbesserung der Bodenstruktur bei gleichzeitigem Meliorationseffekt — Beseitigung von Bodenverdichtungen, Einbringen von Bodenverbesserungsmitteln (z. B. Styroperl) — sowie zur tiefen Einlagerung von Nähr- und Humusstoffen sowie chemischen Entseuchungsmitteln haben sich im Weinbau Druckluft-Lockerungsgeräte bewährt. Bei diesen Geräten wird über eine Sonde an der Spitze einer Lanze, die hydraulisch oder mittels eines Schlagbohrers bis 1 m tief in die Erde gedrückt wird, Druckluft (20 bar) mit hoher Geschwindigkeit in das Erdreich geblasen. Die Luft ruft mehrere Sprenggänge hervor und hebt bzw. lockert den Boden, ohne ihn zu verlagern. Im gleichen Arbeitsgang können in diese aufgesprengten Gänge Verbrauchsmaterial, Dünger oder chemische Wirkstoffe eingebracht werden. Die Geräte selbst sind tragbar, selbstfahrend oder am Schlepper anzubauen, so daß die Einsatzmöglichkeiten nahezu geklärt sind. Durch weiterführende Untersuchungen soll untersucht werden, inwieweit eine bessere Durchlüftung und ein geregelter Wasserhaushalt des Bodens Veränderungen im mikrobiologischen Bereich nach sich ziehen.

E. Moser (Stuttgart)

SCHULZE, G.: **Die Abwehr von Schadvögeln im Weinbau durch Schutznetze** · Protection against harmful birds using nets

Dt. Weinbau 37, 867—871 (1982)

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

In der Nähe von Wald, Baumgruppen und Hecken ist ein Schutz der Weinberge vor Schadvögeln erforderlich. Neben den bekannten phonoakustischen Geräten, deren Wirkung nicht immer befriedigt, ist das Einnetzen der Weinberge eine relativ sichere Maßnahme. Damit verbunden sind z. T. hohe Material- und Arbeitskosten bei der Anbringung wie bei der Abnahme der Netze. Pro ha sind je nach verwendeter Netzart zwischen 940 und 4240 DM reine Materialkosten fällig. Die teuren Hostalen-Netze versprechen allerdings eine Nutzungsdauer von 5—8 Jahren, die billigen Xironet- oder Tettmann-Netze können bei sorgfältiger Behandlung 2—3 Jahre halten. Bewährt hat sich die Flächenabdeckung mit den großmaschigen Netzen bis zum Biegedraht. Der Anschluß zum Boden wird mit engmaschigen Polyäthylen-Netzen vorzunehmen sein, wie sie üblicherweise auch für die Seitenbespannung in gefährdeten Lagen verwendet werden. Damit soll vermieden werden, daß Vögel, die vom Boden her in die Weinberge eindringen, wie auch Igel sich in den Netzen strangulieren. Möglichst unmittelbar nach der Ernte sind die Netze aus Tierschutzgründen zu entfernen. — Neben diesen einzelbetrieblichen Schutzmaßnahmen sind gebietsweise unterschiedliche, gemeinschaftliche Vogelabwehrbemühungen durch die Weinbergsschützen oder durch Vertreiben der Starnschwärme aus den Schlafplätzen mittels phonoakustischer Maßnahmen oder Flugzeugen üblich.

Th. Becker (Deidesheim)

SELLA, C., VIVIANI, C., RINALDELLI, E.: **A new technique for the determination of latent losses during mechanical harvesting** · Eine neue Technik zur Bestimmung von versteckten Verlusten während der mechanischen Lese (ital. m. engl., franz. Zus.)

Riv. Vitecolt. Enol. (Conegliano) 35, 427—430 (1982)

Ist. Ind. Agrar., Univ. Florenz, Italien

An attempt was made to determine losses of must by using a self-propelled, horizontal-shaking, over the row grape harvester (Femenia FC 210) with the Sangiovese cv. Losses of adhesion of must to the machine itself were not observed. The loss of must by adhesion to leaves on the plant and fallen leaves amounted to 142 ml/plant (about 4.8 %) = 3.15 hl/ha. Additional loss of must adhering to the trunk and branches was estimated at 18 ml/plant (additional 0.4 hl/ha).

P. Spiegel-Roy (Bet Dagan)

ZOECKLEIN, B.: **Managing white wine production with the new Missouri Dejuicing Tank** · Weißweinproduktion mit dem neuen Missouri-Entsaftungstank
Eastern Grape Grower Winery News 8, 24—26 (1982).

Author describes a new dejuicing tank used in Missouri for white wine production. The dejuicing system controls the 4 key parameters for white wine production: production efficiency, free run

juice yield, oxidation and non-soluble solid levels. The stainless steel tank contains a removable cylindrical screen core that accomplishes juice extraction by free draining. It can also be used for fermentation and storage, limiting the unit cost of production. With this separator, 20 t can be crushed and drained in 2 h with only 6—7 press loads instead of 10 h with 10 press loads, as is the case with the Vaslin ram press. Since this is a closed system filled with CO₂ or nitrogen, it eliminates juice exposure to oxidation, so that SO₂ levels added at crush can be minimized.

M. Oşlobeanu (Bukarest)

K. BETRIEBSWIRTSCHAFT

WILLNER, S.: Untersuchungen des Arbeitsaufwandes und der Produktionskosten in Weinbaubetrieben an der Mosel · Investigations of the expenditure of work and the production cost in viticultural farms in the Moselle region

Dt. Weinbau 37, 1401—1405; 1432—1435 (1982)

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

Es werden die Ergebnisse von arbeitswirtschaftlichen Studien und Kostenuntersuchungen aus den Jahren 1962—64 und 1968—79 in Weinbaubetrieben der Mittel- und Untermosel vorgestellt. Infolge der geringen Zahl von untersuchten Betrieben können die Ergebnisse allerdings nicht als repräsentativ gelten. In Tabellen wird für jedes Untersuchungsjahr und die verschiedenen Arbeitsverfahren der ermittelte Arbeitsaufwand dargestellt. Um Einflüsse wie Witterung, Änderungen von Arbeitsverfahren und vorhandener Arbeitskapazität, Erntemenge usw. weitgehend auszugleichen, wurden zusätzlich Mittelwerte aus jeweils 3 Jahresergebnissen gebildet. Insgesamt ging der Arbeitsaufwand/ha Ertragsreiblefläche von 2381 AKh im Jahr 1962 um 37 % auf 1441 AKh/ha ERF im Jahr 1979 zurück, wobei der stärkste Rückgang bei der Bodenbearbeitung, der geringste bei der Lese zu verzeichnen war. Die Kosten werden ebenfalls für jedes Jahr und in 3-Jahres-Intervallen tabellarisch ausgewiesen. Die Vollkosten werden auch in die einzelnen Kostenarten (Kapitalkosten, Arbeitskosten, Materialkosten, Unterhaltungskosten, sonstige Kosten) aufgegliedert. Im Gegensatz zum Arbeitsaufwand stiegen die Vollkosten von 12 517 DM/ha in den Jahren 1962/64 um 86 % auf 23 311 DM/ha ERF in den Jahren 1977/79 an.

W. Back (Neustadt)

ZILLIEN, F.: Sind die Rationalisierungsgrenzen im Weinbau erreicht? · Have the limits of rationalization been reached in viticulture?

Dt. Weinbau 37, 1302—1304 (1982)

Verf. widerspricht der anlässlich der Oppenheimer Weinbautage aufgestellten These, es sei bei den meisten Arbeiten im Weinbau kaum noch Zeit einzusparen. Es wird der Weinbauplan von Rheinland-Pfalz zitiert, wonach die Flurbereinigung durch die danach mögliche Mechanisierung zu einer Arbeitszeiteinsparung von 25—35 % und Kostensenkungen von über 30 % führe. Zu Beginn der 70er Jahre von der Forschungsanstalt Geisenheim durchgeführte arbeitswirtschaftliche Untersuchungen in 6 Weinbaugebieten hätten gezeigt, daß die Weinbergsflurbereinigung zu positiven Auswirkungen auf den Arbeitszeitbedarf und die Bewirtschaftungskosten führt. Auch frühere arbeitswirtschaftliche Untersuchungen durch WEHRHEIM und andere Autoren hatten dies schon belegt. Für das Anbaugbiet Rheinhessen werden die Geisenheimer Untersuchungsergebnisse ausführlich dargestellt. Aus der Tatsache, daß in Rheinland-Pfalz erst knapp 50 % der Rebfläche flurbereinigt ist, wird abgeleitet, daß die Rationalisierungsreserven noch keineswegs erschöpft sind und die Flurbereinigung möglichst zügig fortgesetzt werden muß.

W. Back (Neustadt)

L. ÖNOLOGIE

ALTMAYER, B., EICHHORN, K. W., PLAPP, R.: Untersuchungen über den Patulingehalt von Traubenmosten und Wein · Analysis of patulin in grape juices and wine (m. engl. Zus.)
Z. Lebensm.-Untersuch. u. -Forsch. 175, 172—174 (1982)

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

Authors added 10–2400 µg patulin/l to grape juices and recovered 73–120 % (there had been no correlation between added amount and recovery percentage). In addition to this result, they analyzed 55 grape musts from usually cultivated plantations in the Palatinate. They found 82 % of the samples free from patulin, while 22 % contained small amounts < 50 µg/l. 16 % of the musts showed > 50 µg/l of the mycotoxin (highest amount: 230 µg/l). When the plantation had not been treated with pesticides, they found out patulin (50–2200 µg/l) in all examined samples. *R. Woller* (Trier)

Anonym: Spirituosen-Jahrbuch 1983 · Yearbook of alcoholic liquors 1983
VLA f. Spiritusfabrikation u. Fermentationstechnol., Berlin, 512 S. (1982)

In volume 34 of the "Yearbook of alcoholic liquors", the usual arrangement has been maintained. The "ABC of alcoholic beverages" has been brought up to date by introducing several new key words, such as "aromatic substances" in view of the statutory regulations for aromatic substances dated December 22, 1981, and the term "Grundwein" (basic wine) which had been inserted in the wine law in connection with its amendment. — Under "Information for experts", relevant changes of law are quoted as well as the exact wording of § 1 of the above-mentioned regulations for aromatic substances; this para also includes important judicial decisions, interesting numerical data, e.g. production and marketing of spirits in the territory of the Federal Republic and a treatise on the subject "Equity of taxation for spirits in theory and practice". Finally, the volume informs of courses of training in the field of spirits trade. Subsequent to a list of addresses of authorities and professional associations, relevant literature is cited. A list of "recommendable books dealing with wine" concludes this volume of the yearbook. *H. Berndt* (Geilweilerhof)

BERTRAND, A., MEDINA, B., CHEVALLIER, J. P.: Evolution des acides aminés de vins rouges en fonction de la durée de macération · Changes in the amino acid composition of red wines as a function of the duration of maceration (m. engl., dt., span., ital. Zus.)
Connaiss. Vigne Vin (Talence) **16**, 111–123 (1982)
Inst. Oenol. (INRA), Univ. Bordeaux II, Talence, Frankreich

This study was performed with 3 red grape varieties: Cabernet Sauvignon, Merlot and Malbec. Samples (20 l) were removed from a 6 hl tank after: 0 (no maceration), 24, 48 and 96 h and after 11 d of maceration at 25–27 °C. After completion of the alcoholic and the malo-lactic fermentations, the amino acid content of the wines was analyzed by gas chromatography. Data were statistically analyzed using variance analysis, cluster and correspondence factor analyses. Results differ for each grape. It is not possible at this time to associate the content in amino acids of a wine with the duration of maceration. *C. Buteau* (Guelph)

BOUVIER, J. C.: Note sur le dosage automatique de l'éthanol par voie enzymatique avec acquisition et traitement des données · An enzymatic method for automatic determination of ethanol with acquisition and treatment of data
Rev. Franç. Oenol. (Paris) **22** (86), 47–48 (1982)
Sta. Oenol. Technol. Vég. (INRA), Narbonne, Frankreich

Using ADH, this method allows the determination of ethanol in any kind of wine without distillation and up to 40/50 samples/h with an accuracy similar to ebulloscopic methods. The method is comparatively more expensive than traditional colorimetric methods, due to the reagents needed. *V. Arroyo* (Madrid)

BRUER, B. A., BRUER, D. R. G., BRIEN, C. J.: Shelf life of some common winery laboratory reagents · Haltbarkeit einiger häufig gebrauchter Reagenzien des Kellereilabors
Amer. J. Enol. Viticult. **33**, 159–163 (1982)
Roseworthy Agricult. Coll., Roseworthy, S. A., Australien

The shelf life of reagents and solutions commonly used in must and wine analyses was investigated over 3–4 months. The preparation and storage conditions are described in detail. Some of the reagents and solutions showed little or no deterioration, those which showed significant deterioration were: 0.1 N NaOH (keeping 46 d in glass reagent bottles, 37 d in plastic), 0.01 N NaOH (7 d), FeSO₄ (NH₄)₂SO₄ in 2 N H₂SO₄ (5 d), Fehlings A and B (52 d in the light) and Soxhlet solutions (20 h). *R. F. Simpson* (Glen Osmond)

BERTRAND, A., GAUTHIER, M., SALAGOITY-AUGUSTE, M. H.: **Etude de l'évolution des anthocyanes en fonction de la durée de macération** · A study of the evolution of anthocyanins in relation to duration of maceration

Connaiss. Vigne Vin (Talence) **16**, 145—148 (1982)

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

The study was based on analyses of 2 sets of wines, from Cabernet Sauvignon and Malbec grapes, having progressively different skin contact during fermentation viz. from free-run juice, after 24, 48, 96 h and after 11 d of maceration. After retention on a PVP column, anthocyanins were eluted and analysed by h.p.l.c. (C₁₈ bonded silica, 30 cm column with gradient elution in methanol-water-formic acid, detection at 546 nm). Qualitative differences in anthocyanin composition were observed in each set of wines, with malvidin predominant at all stages. Malvidin was solely responsible for colour in the wine from Cabernet Sauvignon having up to 24 h maceration, whereas all 5 anthocyanins were present from the beginning of Malbec maceration, with much greater colour in the Malbec wine from free-run juice. For each variety, anthocyanin composition was fairly uniform after 96 h, with gradual increase in total anthocyanin content during further maceration to 11 d.

T. C. Somers (Adelaide)

BLOUIN, J.: **Les techniques de stabilisation tartrique des vins par le froid** · Techniques for cold stabilisation of wines against tartrate precipitation (m. engl., dt., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) **16**, 63—77 (1982)

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

The principles and practice of tartrate stabilisation by each of the 3 treatments — cold storage, the contact process and the continuous process — are described. Choice of system should depend on consideration of the various technical and economic characteristics of each procedure in relation to the types and volumes of wine to be treated.

T. C. Somers (Adelaide)

CASOLI, A., COLAGRANDE, O.: **Use of high-performance liquid chromatography for the determination of amino acids in sparkling wines** · Die Anwendung der Hochleistungs-Flüssigkeitschromatographie zur Bestimmung von Aminosäuren in Schaumweinen

Amer. J. Enol. Viticult. **33**, 135—139 (1982)

Ist. Enol., Univ. Catt., Piacenza, Italien

The amino acids in sparkling wines were determined by conversion to their dansyl derivatives and separation by HPLC using a C₃ reverse-phase column, a 5 step gradient elution program with acetonitrile — acetic acid — phosphoric acid — water and fluorescence detection. Good separation was obtained with 22 standard amino acids, except for aspartic acid and glutamic acid which co-eluted and cystine which may be converted to cysteine during the derivatization procedure.

R. F. Simpson (Glen Osmond)

DU PLESSIS, C. S., AUGUSTYN, O. P. H.: **Initial study on the guava aroma of Chenin blanc und Colombar wines** · Erste Versuche über das Guajavaaroma von Weinen der Rebsorten Chenin blanc und Colombar

S. Afr. J. Enol. Viticult. (Stellenbosch) **2**, 101—103 (1981)

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

A mercaptan, 4-methyl-4-mercapto-pentan-2-one, which has been reported in beer and described as having a guava-like aroma at high dilution, was evaluated in a "neutral" wine. At a concentration of 0.08 µg/l, it was shown to significantly increase the "Chenin blanc or Colombar" aroma ($p < 0.001$), when added to the base "neutral" wine. Addition of CdSO₄ (to remove sulfides) to a "guava-like" Colombar wine did not produce a significant difference in the wine aroma. However, addition of CuSO₄ (to form the non-volatile mercaptan) to the same wine resulted in a significant decrease in the "cultivar" aroma ($p < 0.001$). The need for further investigation of the flavor contribution of sulfur compounds in wine is stressed.

A. C. Noble (Davis)

EWART, A. J. W.: **Botrytis: its use in the production of a speciality wine** · *Botrytis: Nutzung bei der Produktion einer Weinspezialität*

Austral. Grapegrower Winemaker 19 (220), 24—26 (1982)

Roseworthy Agricult. Coll., Roseworthy, Australien

A short review on the history of the use of noble rot (*pourriture noble*) for making sweet white table wines is given. The earliest wines were produced in the 12th century in Germany and in Hungary. — From 3 traditional centers, Rheingau, Tokay and Sauternes, the production of botrytised wine has spread. Today it is produced also in northern Italy, California, South Africa and Australia. — The mechanisms of natural and artificial inoculation are described. In countries like Australia, where the climate during vintage is hot and dry, *Botrytis cinerea* does not naturally infect vineyards. The fruit there is harvested, placed on trays, inoculated with a spore suspension and incubated at 90—100 % relative humidity and 20—25 °C for 24 h. This period is followed by cool dry conditions to check the growth of the *Botrytis* and facilitate berry dehydration. Data on the composition of infected and non-*Botrytis*-infected grapes and a procedure for production of spores are given.

B. Bravdo (Rehovot)

FERENCZI, S., ASVANY, A., ERCZHEGYI, L.: **Stabilisation des vins contre les précipitations tartriques par le froid** · Freezing tartar stabilization of wines

Bull. OIV 55, 203—220 (1982)

This is a report on new continuous systems to remove potassium bitartrate from wines. The processes offer the best stabilization for bottling, though the calcium tartrate precipitation occurring in the bottle cannot be avoided because this salt passes unchanged through these systems. All types of wine (white, red, claret, etc.) can be treated.

V. Arroyo (Madrid)

GIOSANU, T. et al.: **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, 598—602 (1982)

Inst. Vigne Vin, Bukarest, Rumänien

Authors report on 2 major changes facing the Romanian wine industry: the introduction of large tanks with automatic pumping-over devices for maceration-fermentation of red grapes replacing the traditional wooden vessels, and the drastic stabilization treatment of exported wines, e.g. blue fining, bentonite, membrane filtration etc. These changes are not necessarily accompanied by an improvement of wine quality.

C. Buteau (Guelph)

GÖRTGES, S.: **Problematik der Eiweißstabilisierung** · Problems of protein stabilization
Weinwirtsch. (Neustadt/Weinstr.) 118, 931—935 (1982)

Zur Vermeidung von Nachtrübungen in Flaschenweinen wird die gezielte Anwendung von Bentonit empfohlen. Hierzu werden Qualitätskriterien von Bentonit und der Zeitpunkt der Zugabe diskutiert. Empfohlen wird die Zugabe zum Most, spätestens zum Jungwein. Erhitzen des Mostes erschwert die Eiweißstabilisierung mit Bentonit. Einfache Prüfmethode zur Feststellung der Eiweißadsorptionskräfte von Bentonit werden mitgeteilt.

O. Endres (Speyer)

GRIMANIS, A. P., VASSILAKI-GRIMANI, M., KANIAS, G. D.: **Certain elements in Greek wines** · Einige Elemente in griechischen Weinen

In: G. CHARALAMBOUS, G. INGLET (Eds.): The Quality of Foods and Beverages. Chem. Technol. 2, 349—361 (1981) Acad. Press, London

Radioanalyt. Lab., Chem. Div., Nucl. Res. Center "Demokritos", Athen, Griechenland

The concentration of 7 elements (As, Br, Cu, Mn, Cl, K, Na) in Greek red and white wines from 6 different production areas have been determined by neutron activation analysis. The results show normal levels in comparison to other wine growing countries and no significant differences.

H. Eschnauer (Ingelheim)

HAMATSCHEK, J., POTOTSCHNIGG, F.: **Maischekurzhoherhitzung bei der Rotweingewinnung** · High temperature-short time must treatment for red wine making
Dt. Weinbau 37, 1060—1067 (1982)

The production of red wine by high temperature-short time treatment of must is discussed with respect to energy requirements, the relationship between the contents of anthocyanins and total polyphenols extracted and their effects on taste, economic clarification and filtering, and yield of juice. Optimum conditions were considered to involve six min heating at 87 °C, a holding time of 1 h at 30 °C and addition of pectolytic enzyme directly after pressing. C. F. Timberlake (Long Ashton)

KUPINA, S. A., KUTSCHINSKI, J. L., WILLIAMS, R. D., DESOTO, R. T.: **A refined gas chromatographic procedure for the measurement of acetic acid in wines and its comparison with the distillation method** · Eine verbesserte Methode zur Messung von Essigsäure in Weinen und ihr Vergleich mit der Destillationsmethode
Amer. J. Enol. Viticult. 33, 67—74 (1982)

A gas chromatographic method for the determination of acetic acid is described. A 6 ft. × 1/4 in. (2 mm I.D.) column was packed with 60/80 mesh carbopak B coated with 0.5 % Carbowax 20 M. The carrier gas, nitrogen, was saturated with formic acid vapor. The resulting separation of acetic acid and ethanol was accomplished without 'tailing' or 'ghosting'. 1-pentanol (n amyl alcohol) was used as the internal standard. The accuracy of the GC method when compared with the standard steam distillation method was ± 1.2 % at the 0.04 g/100 ml acetic acid concentration. The standard deviation was ± 0.0007 g/100 ml.
L. R. Mattick (Geneva)

MANNINO, S.: **Determination of Pb, Cu and Cd in wine using the potentiometric stripping analysis** · Bestimmung von Pb, Cu and Cd in Wein mit der potentiometrischen „Stripping-Analyse“ (ital. u. franz. Zus.)
Riv. Viticult. Enol. (Conegliano) 35, 297—304 (1982)
Ist. Chim. Agrar., Univ. Mailand, Italien

Potentiometric stripping analysis was applied to the quantitative determination of Pb, Cu and Cd in wines. The proposed method works without any pretreatment of the sample. The results show reliable accuracy, even in ppb concentration.
H. Eschnauer (Ingelheim)

MARAIS, J., ROOYEN, P. C. VAN, DU PLESSIS, C. S.: **Classification of white cultivar wines by origin using volatile aroma components** · Klassifizierung von Weißweinsorten nach ihrer Herkunft mit Hilfe von flüchtigen Aromastoffen
S. Afr. J. Enol. Viticult. (Stellenbosch) 2, 45—49 (1981)
Oenol. Viticult. Res. Inst., Stellenbosch, RSA

Wines of Colombar and Chenin blanc grapes from 2 and 3 different locations, respectively, were prepared by standardized procedures. Volatiles were extracted with Freon, and quantified by gas chromatography (GC). 4 higher alcohols (I), 8 esters (II) and I plus II and 2 acids (III) were used as variables in stepwise discriminant analyses to classify the wines within each variety by location. For the Colombar, i-amyl acetate was the best discriminator; hexanol and 2-phenyl ethanol are the best discriminators for Chenin blanc. When the canonical plots are shown using the best group of variables to derive the functions, in both instances the wines from each location are completely separated in tight clusters, indicating that the differences in maturity and other viticultural or enological practices had less effect on the amounts of the tested components than location. It would be very interesting to have had sensory data accompanying this paper, to show whether wines from the different locations could be discriminated.
A. C. Noble (Davis)

MARCY, J. E., CARROLL, D. E.: **A rapid method for the simultaneous determination of major organic acids and sugars in grape musts** · Schnellmethode zur Simultanbestimmung der wichtigsten organischen Säuren und Zucker im Traubenmost
Amer. J. Enol. Viticult. 33, 176—177 (1982)

A rapid method was developed for the simultaneous determination of tartaric acid, malic acid, fructose, glucose and sucrose in grape must using packed glass column gas chromatography. Sample treatment incorporated treatment with hydroxylamine hydrochloride to eliminate peaks due to

tautomeric forms of the sugars, and trimethylsilylation. Linear response was given to additions of 0.5—6.0 mg/ml of all 5 compounds to samples containing 5—10 mg (dry weight) of sugars and acids; recoveries of 98.2—101.0 % and standard deviations of 2.14—3.83 % were reported.

R. F. Simpson (Glen Osmond)

MAURER, R.: Bedeutung und praktische Möglichkeiten der Gärtemperaturregelung · Importance and practical possibilities of regulating the fermentation temperature
Rebe u. Wein 35, 361—364 (1982)

Staatl. LVA f. Wein- Obstbau, Weinsberg

Nach allgemeinen Ausführungen zur Bildung und Ableitung der Gärenergie werden praktische Empfehlungen (Optimaltemperatur, Messung, Regelung mit modernen Geräten) ausgesprochen.

L. Jakob (Neustadt)

MOHR, H. D.: Schwermetalle in badischen Weinen · Heavy metals in wines of the Baden area (m. engl. Zus.)

Wein-Wiss. 37, 275—284 (1982)

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

The heavy metal content of Fe, Mn, Zn, Cu, Cr, Pb and Cd in 82 wine samples of the years 1975—1977 from the wine growing area of Baden shows low levels in comparison to wine growing areas of other countries. Sources of heavy metal contamination and its reduction during fermentation or fining are discussed. The determination methods used were atomic absorption spectroscopy and polarography.

H. Eschnauer (Ingelheim)

MÜLLER, TH., WÜRDIG, G.: Untersuchungen zum Nachweis und zur Bestimmung von Pentachlorphenol (PCP) im Faßholz · Study for the identification and determination of pentachlorophenol (PCP) in vat wood (m. engl. Zus.)

Wein-Wiss. 37, 208—213 (1982)

Inst. Weinchem. Gärungsphysiol., LLVA f. Wein- Gartenbau Landwirtschaft., Trier

Methods are described for the TLC-separation, the identification and the photometric determination of pentachlorophenol (PCP) in vat-wood extracts. — The results show that PCP is carried from the vat surface into deeper layers of wood by the applied vat-oil. Depending upon wood consistency, penetration of PCP was observed at 8 mm depth of wood to an extent of 12 ppm, when the surface concentration was 270 ppm.

C. F. Timberlake (Long Ashton)

MÜLLER-SPATH, H.: Die Rolle der Kohlensäure beim Stillwein auch in Verbindung mit dem biologischen Säureabbau und seiner Verhinderung · Role of carbonic acid in still wine, also in connection with malo-lactic fermentation and its prevention

Weinwirtsch. (Neustadt/Weinstr.) 118, 1031—1037 (1982)

In einer ausführlich zusammenfassenden Studie berichtet Verf. über die starke Qualitätsbeeinflussung von Weinen durch CO₂. Als optimale CO₂-Gehalte werden bei Rotweinen max. 1,0 g/l, bei Weißweinen max. 1,8 g/l angesehen. Veränderungen eines angestrebten CO₂-Gehaltes durch bakteriellen Säureabbau und durch Abfüllung mit verschiedenen Füllverfahren und -systemen werden beschrieben.

H. Schlotter (Bad Kreuznach)

MÜLLER-SPATH, H.: Sauerstoff — Weinbereitung und Abfüllung · Oxygen — wine making and bottling

Dt. Weinbau 37, 1210—1222 (1982)

Verf. geht in einem umfassenden Zwiegespräch auf Praktikerfragen zur Funktion des Sauerstoffs während der Weinbereitung ein und stellt die Ergebnisse einer Reihe von Ringversuchen in Tabellen dar, z. B. die mögliche O₂-Aufnahme von der Füllungsvorbereitung bis zum Flaschenverschluß.

H. Schlotter (Bad Kreuznach)

NAGEL, CH. W., AMISTOSO, J. L., BENDEL, R. B.: **The effect of pH and titratable acidity on the quality of dry white wines** · Die Wirkung von pH und titrierbarer Säure auf die Qualität von trockenen Weißweinen

Amer. J. Enol. Viticult. **33**, 75—79 (1982)

Dept. Food Sci. Technol., Wash. State Univ., Pullman, Wash., USA

In the scoring of Sauvignon blanc and Riesling wines, inconsistent results were obtained with the Sauvignon blanc, while the Riesling showed definite trends that were statistically significant ($P < 0.05$). Lower titratable acidities were preferred at lower pH's. A pH of 3.3 was preferred in the ranking over the titratable acidity range of 0.5—0.8 %. In general, a titratable acidity of 0.9 % or greater or pH greater than 3.4 received a poor ranking. Riesling with a pH 3.0 was found to be more acid and have more after-taste than the same wine at pH 3.6. Sauvignon blanc was found to have more body at pH 3.6, while at pH 3.0 it was fruitier.

L. R. Mattick (Geneva)

PILONE, G. J.: **Decolorizing wines for analytical purposes** · Entfärben von Weinen für analytische Zwecke

Amer. J. Enol. Viticult. **33**, 60 (1982)

A technical note which informs the reader that the resin marketed by Bio Rad Laboratories, Richmond, CA., USA, as Bio-Beads SM-2 is not the same as the resin employed in the study described in the Amer. J. Enol. Viticult. **28**, 104 (1977) (see also *Vitis* **16**, 357, 1977). The resin used was FSP 4022 marketed by the same company.

L. Mattick (Geneva)

PIRACCI, A., SPERA, G., CASTINO, M.: **Malo-lactic fermentation and characteristics of white wines of Latium** · Säureabbau und Eigenschaften von Weißweinen aus Latium (ital. m. engl. Zus.)

Vignevisini (Bologna) **9** (5), 43—47 (1982)

Ist. Sper. Enol. Asti, Italien

Latium white wines made from 60 % Malvasia di Candia and 40 % Trebbiano tuscano grapes and which have undergone a malo-lactic fermentation are described as flat in flavor. For 70 representative samples the median pH was 3.4 and the median lactic acid 1.8 g/l. To see if prevention of the ML fermentation would improve the flavor enough, $K_2S_2O_5$ (20 g/hl) to inhibit bacteria was added to an aliquot of must. The malic acid containing wine is described as much more fruity in aroma than the control but also as unharmonious and pungent on taste. Data for many constituents of the must and the wines are given.

A. D. Webb (Davis)

PONTALIER, P., SALAGOITY-AUGUSTE, M.-H., RIBÉREAU-GAYON, P.: **Intervention du bois de chêne dans l'évolution des vins rouges élevés en barriques** · The utilization of the wood of oak for the development of high quality red wines in barrels (m. engl., dt., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) **16**, 45—61 (1982)

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

Detailed experiments have shown the superiority of Allier oak. Natural open air drying gives a finer and stronger vanilla wood character than artificial oven drying. Limousin oak does not give an intense or agreeable woody character and is less sensitive to the drying method. The determination of the phenol acids confirm the organoleptic test of those wines. The method to form the barrels (by flame or steam) and the conditions for soaking out (by cold or hot water or by steam) have not much influence on the quality of the barrel.

H. Eschnauer (Ingelheim)

POSTEL, W., ZIEGLER, L., MACCAGNAN, G.: **Untersuchungen zur Weinstabilisierung von Wein durch Kationenaustauscherbehandlung. Einfluß auf die Stickstoffsubstanzen des Weines** · Studies on tartrate stabilization of wine by cation exchange treatment. Influence on the nitrogen containing substances in wine

Weinwirtsch. (Neustadt/Weinstr.) **118**, 824—828 (1982)

Lehrstuhl Allgem. Lebensmitteltechnol., TU München, Freising-Weihenstephan

The cation exchange treatment for tartrate stabilization has a definite effect on the total, formol, and α -amino N substances of wine. The free amino acids are the major contributing factor. A definite difference was observed between the neutral, acidic, and basic amino acids. The group which had the greatest decrease were the basic amino acids.
R. Mattick (Geneva)

REIJENGA, J. C., VERHEGGEN, P. E. M., EVERAERTS, F. M.: **Simultaneous determination of organic and inorganic acids and additives in wines by capillary isotachopheresis using UV and a. c. conductivity detection** · Simultanbestimmung von organischen und anorganischen Säuren und Zusätzen in Weinen durch Kapillar-Isotachophorese mittels UV- und Wechselstromleitfähigkeits-Technik
J. Chromatography (Amsterdam) 245, 120—125 (1982)

Eindhoven Univ. Tech., Lab. Instr. Analys., Eindhoven, Holland

100 wines (50 red, 37 white and 13 rosé) were analyzed by capillary isotachopheresis. Sorbic, tartaric, ascorbic, citric, and sulphurous acids as well as several other inorganic and organic acids (Krebs Cycle) were determined in the same run. Application of isotachopheresis with thermometric detection in food analysis are reviewed. Capillary isotachopheresis with universal (conductivity) and specific (254 nm) detection is advanced as a valuable analytical tool in the analysis of wines. The method requires a minimum of sample pre-treatment and a relatively short analysis time.

R. Mattick (Geneva)

RISTOW, R., BERNAU, M.: **Zur Wiederholbarkeit und Vergleichbarkeit von Bleibestimmungen in Wein nach verschiedenen atomabsorptions-spektralphotometrischen Untersuchungsmethoden** · Reproducibility and comparability of different atomic absorption spectrophotometry methods to determine lead in wine (m. engl., franz. Zus.)
Dt. Lebensm.-Rundsch. (Stuttgart) 78, 125—130 (1982)

Chem. Untersuchungsamt, Koblenz

In cooperation with 9 laboratories (ring test) different methods of determination of Pb in wine were controlled, compared and recommended. The results of the statistical parameters reproducibility = 0.083 mg/l and comparibility $R' = 0.169$ mg/l are satisfactory. An atomic absorption spectrophotometry method for determination of Pb in wine to control the maximum limit of 0.3 mg Pb/l is recommended.
H. Eschnauer (Ingelheim)

ROQUES, J., GUITTARD, G., GUITTARD, A.: **La stabilisation des vins, étude sur le procédé par contact au laboratoire et ses contrôles analytiques** · Wine stabilization, a study concerning the contact process in laboratory and its analytical controls
Bull. Tech. Pyrénées/Orient. (Perpignan) 104, 79—88 (1982)

The efficiency control of cold stabilization of wines is usually carried out by determining their content in tartaric acid, K, Ca and by pH determination. During the trials, a physical test-method was pursued, a method which should be based on measuring the conductivity of the wines suffering cold treatments. This method could be used for checking the efficiency of the treatment when it is applied on an industrial scale on large quantities of wine. However, the small amplitudes of the conductivity values, registered during the trials, do not allow to foresee the possibility of using this method in an industrial control of wine stabilization.
M. Macici (Valea Călugărească)

SALGUES, M., HEITZ, F., BIDAN, P.: **Réflexions sur la cristallisation du tartre dans les vins** · Reflections on crystallization of tartar in wines
Bull. OIV 55, 229—238 (1982)

The crystallization is studied from a theoretical point of view emphasizing the surging problems on its applicability to a nature medium as is wine. Authors demand more research in the fields of complexes of tartaric acid and K, wine colloids, and a better knowledge of crystallization in wines. It is the aim of this investigation to improve the technical treatments and to obtain the best system for each wine.
V. Arroyo (Madrid)

SAPIS, J. C., CORDONNIER, R., DUGAL, A., BIRON, C.: **Etude de l'influence de la «vinomacération» sur la couleur et les activités polyphénoloxidasiques des jus de raisins**

rouges · Study of the influence of "vinomaceration" on the colour and polyphenoloxidase activities of red grape juices (m. engl., dt., span., ital. Zus.)

Connaiss. Vigne Vin (Talence) **16**, 97—110 (1982)

Sta. Technol. Vég. (INRA), Montpellier, Frankreich

The experimental study, at laboratory scale, of "vinomaceration" (maceration before fermentation of not-crushed red grapes in wine heated up to 50 °C) shows that this treatment has limited effects on the colour and polyphenoloxidase activities in juices; as a consequence of this treatment, it has been registered a slight increase of colour intensity and the total tannin content in juice. In case of juices from rotten grapes, "vinomaceration" causes a decrease — limited and with a very large variability — of laccase activities; tyrosinase activities increase after treatment. — This method can be applied in the technological branch for heating up grapes for wine making through carbonic maceration.

M. Macici (Valea Călugărească)

SHIMIZU, J.-I., WATANABE, M.: **Volatile components identified in the acidic fractions of wines from Koshu and Zenkoji grapes** · Die Identifizierung flüchtiger Aromastoffe in den Säurefraktionen von Weinen aus Koshu- und Zenkojitrauben

Agricult. Biol. Chem. (Tokyo) **46**, 1377—1380 (1982)

Acidic fractions isolated using sodium carbonate solution from dichloromethane extracts of wines from Koshu and Zenkoji grapes were analysed by gas chromatography-mass spectrometry. The identifications of 38 components are listed which include 11 acids and 2 phenols, the remainder being neutral compounds. New components in wine are reported, but the identities of those based only on mass spectral data must be considered as tentative.

R. F. Simpson (Glen Osmond)

SHIMIZU, J., WATANABE, M.: **Volatile components identified in the phenolic fractions of wines from Koshu and Zenkoji grapes** · Die Identifizierung flüchtiger Aromastoffe in den Phenolfraktionen von Weinen aus Koshu- und Zenkojitrauben

Agricult. Biol. Chem. (Tokyo) **46**, 1447—1452 (1982)

Aliquots of CH₂Cl₂ extracts of Koshu and Zenjoji wines were extracted 2× with equal volumes of 3 % Na₂CO₃ solution and then with 3 % NaOH solution. The phenolic fractions (Na₂CO₃ extracts), analyzed by GC-MS, showed 13 Phenols, 11 acids, 8 lactones, 4 ketones, and many alcohols. Extracts from different wines had nearly the same components but in different proportions, and non-wine-like odors which were unpleasant. 2,5-Di-tert-butyl-4-methylphenol, 3,4-dimethylphenol, 2-methoxy-4-vinylphenol, 2,6-di-tert-butyl-4-ethylphenol and 4-allyl-2,6-dimethoxy phenol are reported as detected for the first time in wines.

A. D. Webb (Davis)

TEP, Y.: **La détermination du titre alcoométrique: Précision des différentes méthodes** · Accuracy of different methods: Determining ethanol in wines

Rev. Franç. Oenol. (Paris) **22** (86), 35—39 (1982)

Lab. Chim. Analyt. Toxicol., Fac. Pharm., Montpellier, Frankreich

The accuracy of methods with and without previous distillation is studied. All of them are useful for routine determinations, except ebulloscopic methods. In case of arbitration analysis, where more precision is needed, the previous distillation is required to make sure the results. Spoiled and sweet wines need always distillation.

V. Arroyo (Madrid)

USSEGLIO-TOMASSET, L., CIOLFI, G., STEFANO, R. di: **The influence of the presence of anthocyanins on the antiseptic activity of sulfur dioxide towards yeasts** · Der Einfluß von Anthocyanen auf die antimikrobielle Aktivität von Schwefeldioxid gegen Hefen (ital., engl.)

Vini d'Italia **24** (137), 86—94 (1982)

Ist. Sper. Enol, Asti, Italien

The presence of anthocyanins influences very little the antimicrobial effect of sulfur dioxide against *Saccharomyces cerevisiae* and *S. bayanus*, despite the fact that sulfur dioxide combines remarkably with anthocyanins.

E. Lück (Frankfurt)

WILLIAMS, L. A.: **Heat release in alcoholic fermentation: A critical reappraisal** · Chaleur émise lors de la fermentation alcoolique: une réévaluation critique

Amer. J. Enol. Viticult. **33**, 149—153 (1982)

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

Author estimated the heat loss during the alcoholic fermentation, using thermodynamic laws. Theoretical values for both ideal and actual fermentation stoichiometry agreed. The value for heat of fermentation (23.5 Kcal/mol) measured by BOUFFARD in 1895 was found acceptable, but more recent estimates are inaccurate (overestimates) because of artefacts introduced by the microcalorimeter techniques used. Extremely high values for heats of fermentation when applied to winery engineering could result in a costly overdesign of cooling systems. *C. Buteau (Guelph)*

WOIWODOV, K., GALUNSKY, B., DJANKOV, S., GORINOVA, N., TZAKOV, D.: **Immobilisierte saure Protease zur Eiweißstabilisierung von Weinen** · Immobilised acid protease for protein stabilization of wines (m. engl., franz. Zus.)

Mitt. Klosterneuburg **32**, 117—121 (1982)

Inst. Org. Chem., Bulg. Akad. Wiss., Sofia, Bulgarien

Ein für die Eiweißhydrolyse geeignetes Enzympräparat wurde auf der Basis immobilisierter saurer Protease aus *Aspergillus niger* VAN TIEGHEM-MB gewonnen. Die Eiweißstoffe der mit dem Enzym behandelten Weine unterlagen großen Veränderungen, die zu einer allmählichen Verringerung der Zahl der Eiweißfraktionen und deren Menge führten. Eiweißfraktionen mit höherer elektrophoretischer Beweglichkeit wurden leichter hydrolysiert, offenbar wegen des Vorhandenseins von Polypeptidketten, welche dem Abbau leichter zugänglich sind. Die Anwendung eines aktiven Enzympräparates zur Eiweißhydrolyse im Wein, z. B. 4 g/l für 48 h, ergab eine sehr gute Eiweißstabilität. Eine Gefahr, daß das Enzym im Wein freigesetzt wird, besteht nicht, da eine kovalente Bindung zwischen Träger (Sylochrom C-80) und Enzym besteht. *E. Endres (Speyer)*

WUCHERPFENNIG, K., DIETRICH, H.: **Verbesserung der Filtrierfähigkeit von Weinen durch enzymatischen Abbau von kohlenhydrathaltigen Kolloiden** · Improvement of filtering capacity of wines by enzymatic degradation of carbohydrate-containing colloids

Weinwirtsch. (Neustadt/Weinstr.) **118**, 598—603 (1982)

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

Authors found that deficient clarification and poor filterability of wines are primarily caused by dissolved polysaccharides. These polysaccharides are not to remove from wines by adsorption agents and several filtration steps. The degradation is possible by use of an enzyme preparation with β -glucanhydrolytic activity. The treatment with 1 g/hl of this preparation hastens clarification and improves filterability within 4 or 5 d. Enzyme preparations with depectinizing activity do not reduce the polysaccharides. Authors finally propose a method which may help to prove whether enzyme treatment of wines is necessary or not. Further research is performed to isolate and characterize the polysaccharides. *W. Flak (Wien)*

WÜRDIG, G., MÜLLER, Th., FRIEDRICH, G.: **Untersuchungen zur Weinsteinstabilität. 2. Mitteilung: Beobachtungen zur Wirkung der Metaweinsäure** · Examinations on tartar stability. Note II: Observations on the effect of meta-tartaric acid

Weinwirtsch. (Neustadt/Weinstr.) **118**, 521—526 (1982)

Inst. Weinchem. Gärungsphysiol., LLVA f. Wein- Gartenbau Landwirtschaft., Trier

Conductivity measurements showed, that meta-tartaric acid does not only retard crystallization, but also decreases the solution of tartar in wine. Both effects can be used for the determination of meta-tartaric acid in wine down to a detectable concentration of 0.5 mg/l (in some cases 0.2 mg/l). The addition of small amounts of meta-tartaric acid stops the solution of wine tartrate in a heated wine when using a contact method. The applied tartar becomes ineffective by adsorption of meta-tartaric acid on its surface and is unsuitable for further contact processes. The regeneration of inactive tartar is possible but quite complicated. Therefore, this application of meta-tartaric acid is not recommended. *W. Flak (Wien)*

YANKOV, L. K., KRYSSTOVA, M. A., KAMBUROV, M. N.: **Examination of the composition of aroma-forming substances of Bulgarian dry white wines** · Untersuchung der Zusammensetzung von Aromastoffen bei trockenen Tafelweinen aus Bulgarien (russ. m. engl. Zus.)

Prikl. Biokhim. Mikrobiol. (Moskau) **18**, 257—261 (1982)
 Vissh. Khim.-Tekhnol. Inst., Sofia, Bulgarien

50 aroma-forming substances were determined by gas liquid chromatography and spectrometry in 3 Bulgarian dry white wines named Varna Dimyat Karlov Misket and Tamyanka. The analysis proved that the 3 wines contained high quantities of terpene compounds, esters of fatty acids, esters of di- and hydroxy-carboxylic acids with different alcohols. Different amounts of terpene compounds were found in the 3 examined wines. Varna Dimyat contained considerable amounts of β -phenyl ethanol, farnesol and α -terpinol, Karlov Misket: linalool and Tamyanka: β -phenyl ethanol.
S. A. Abou-Donia (Alexandria)

ZURN, F.: **Flaschensterilisation mit Ozon** · Sterilization of wine bottles with ozone
 Weinwirtsch. (Neustadt/Weinstr.) **118**, 793—800 (1982)

The possibility of the sterilization of wine bottles with ozone is described and recommended. The procedure, the apparatus, and the costs are discussed. All factors show that the procedure is a positive alternative for the praxis and most friendly to environment.
H. Eschnauer (Ingelheim)

M. MIKROBIOLOGIE

CASTINO, M.: **Hefen und Polyphenole** · Yeasts and polyphenols (ital. m. engl. Zus.)
 Riv. Viticult. Enol. (Conegliano) **35**, 333—348 (1982)
 Ist. Sper. Enol., Asti, Italien

Während der Weinbereitung wird eine deutliche Abnahme der Polyphenole festgestellt, was zum Teil auf den Ausfall kolloidaler Komplexe zurückzuführen ist, die vorwiegend Proanthocyanidine enthalten. Die Hefen absorbieren je nach Hefenstamm 25—45 % der Flavonoide, etwa so viel wie die heute wirksamsten Mittel (Caseinate und Kohle). Deshalb erscheint der Einsatz geeigneter Hefenstämme auch im Hinblick auf die Stabilisierung gegen Oxidation besonders von Weißweinen zweckmäßig.
B. Weger (Bozen)

CAZELLES, O., GNAEGI, F.: **Enquête sur l'importance pratique du problème des bactériophages dans le vin** · Investigations on the problem of bacteriophage development in wines (m. engl., dt., ital. Zus.)

Rev. Suisse Viticult. Arboricult. Hort. (Changins) **14**, 267—270 (1982)
 Sta. Féd. Rech. Agron. Changins, Nyon, Schweiz

In a series of carefully controlled and monitored malo-lactic fermentations of Chasselas, Pinot and Gamay wines of the 1981 vintage of the Swiss Kanton of Valais it is shown convincingly that each time spontaneous or induced *Leuconostoc* fermentations encounter difficulties bacteriophages can be isolated (10^7 cells/ml). When these wines were finally checked for surviving bacteria a considerable built-up of the numbers of *Pediococci* was detected. Oenological consequences are then briefly discussed and related to similarly serious difficulties of dairy industries.
R. Eschenbruch (Te Kauwhata)

CUENAT, Ph., CAZELLES, O., CRETENAND, J.: **Les levures sèches actives et leur influence sur la qualité des vins blancs de Chasselas** · Active dry yeasts and their influence on the quality of white Chasselas wines (m. dt., engl., ital. Zus.)

Rev. Suisse Viticult. Arboricult. Hort. Changins **14**, 235—241 (1982)
 Sta. Féd. Rech. Agron. Changins, Nyon, Schweiz

The effect of inoculating wine with active dried yeast (A.D.Y.) preparations is studied; the control being a standard, widely used starter culture. A.D.Y. is tested on Chasselas wine. Organoleptic and

enological acceptability are determined to be acceptable to the commercial situation. Whilst proving to be a rapid and reliable method of inoculation, and facilitating the rapid preparation of standard starter cultures, A.D.Y. is found to impart only favourable organoleptic qualities to the finished wine.
R. R. Nelson (Winona)

DAVIS, C. R., FLEET, G. H., LEE, T. H.: **Inactivation of wine cork microflora by a commercial sulfur dioxide treatment** · Inaktivierung der Mikroflora des Weinkorkens durch kommerzielle Schwefeldioxidbehandlung

Amer. J. Enol. Viticult. **33**, 124—127 (1982)

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

The effectiveness of sterilization of wine corks with gaseous SO₂ was assessed. Counts of molds and bacteria were reduced by almost 100 % and 80 %, respectively. The predominant microflora of untreated corks consisted of molds (more than 10⁶ colony forming units [CFUs]/cork), particularly *Penicillium* spp. Bacteria were less abundant (10³ CFUs/cork), but more resistant to the treatment. *Bacillus* spp. were frequently isolated, but whether they are of significance in wine spoilage needs to be determined. Yeasts were rarely detected in untreated corks.
C. L. Dutschaeffer (Guelph)

FARRIES, G. A., FATICHENTI, F., DEIANA, P., MADAU, G., CARDU, P., SERRA, M.: **Selection of *Saccharomyces cerevisiae* strains which are low producers of SO₂-acceptors. Winery fermentation experiments** · Selektion von *S.-cerevisiae*-Stämmen, die wenig SO₂-Akzeptoren produzieren. Kellerei-Gärversuche (ital. m. engl. Zus.)

Riv. Viticult. Enol. (Conegliano) **35**, 376—384 (1982)

Ist. Microbiol. Agrar. Tec. A. Capriotti, Univ. Sassari, Italien

Twelve 200-l lots of a Nuragus must from Cagliari (sugar 19.2 %, total acid given as 5.9 %, pH 3.6) were fermented in triplicate with 3 strains of yeast previously selected for their low production of SO₂-acceptors, and the wild yeast. The selected yeast fermentations finished in 5 d, the wild yeast required 9 d. Selected yeast produced less acetaldehyde, pyruvate, and α-ketoglutarate than did the wild yeast; the first 2 compounds appeared early, the latter later in the fermentation. Fermentations with the selected yeasts permit satisfactory winemaking with smaller additions of SO₂.

A. D. Webb (Davis)

SOLES, R. M., OUGH, C. S., KUNKEE, R. E.: **Ester concentration differences in wine fermented by various species and strains of yeasts** · Unterschiede in der Esterkonzentration in Wein nach Vergärung mit verschiedenen Hefenarten und -stämmen

Amer. J. Enol. Viticult. **33**, 94—98 (1982)

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

An investigation into the influence of wine yeast species and strains on the production of esters during the fermentation of grape juice was carried out. Quantitative estimates were made of isoamyl acetate, hexyl acetate, ethyl hexanoate, ethyl octanoate, 2-phenethyl acetate and ethyl decanoate. Analysis of variance demonstrated a statistical significance due to yeast species and strains on the individual quantities of each of the esters in the fermented juice.

D. J. Spedding (Auckland)

SCHMITT, A., KÖHLER, H.-J., MILTENBERGER, R., CURSCHMANN, K.: **Versuche zum biologischen Säureabbau bei fränkischen Weißweinen** · Experiments with malo-lactic fermentation in Frankonian white wines

Dt. Weinbau **37**, 1199—1208 (1982)

Bayer, LA f. Weinbau Gartenbau, Würzburg-Veitshöchheim

To achieve lower concentrations of the SO₂-binding compounds and to reduce the SO₂ load of wines, Faber, Fontanara and Kerner wines were, when they had nearly completed their alcoholic fermentation, inoculated with a pure culture of *Leuconostoc*. In 1980, inoculum was 4 × 10⁶, in 1981 8 × 10⁶ cells/ml, fermentation at appr. 20 °C. Detailed analytical comparisons showed in all cases an increase in volatile acidity and ester formation. The levels of SO₂-binding components were generally reduced, however, the results varied considerably. The same applies for total SO₂. Sensory evaluations were not always in favour of the MLF wines, even if they were free of any other faults.

Authors conclude that in view of the present insufficient knowledge and control of the bacterial activity its recommendation seems premature, at least for Frankonian wines.

R. Eschenbruch (Te Kauwhata)

STEFANI, R. DI, CIOLFI, G.: **Transformations of C₆ aldehydes and alcohols by yeasts during fermentation** · Umwandlung von C₆-Aldehyden und -Alkoholen durch Hefen während der Gärung (ital. m. engl., franz. Zus.)

Riv. Viticolt. Enol. (Conegliano) **35**, 431—435 (1982)

Ist. Sper. Enol., Asti, Italien

2 aliquots of a synthetic medium (400 mg N/l as ammonia, 200 g sucrose/l) had added 2824 µg hexanal/l or 3044 µg trans-2-hexenol/l and 3,696 µg of cis-3-hexenol/l. Each was inoculated with the same amount of a strain of *Saccharomyces cerevisiae* and fermented at 20 °C. Volatiles were analyzed by programmed-temperature GC on a Carbowax 20 M capillary column. — Hexanal and trans-2-hexenol are reduced to hexanol (but not quantitatively) by yeast during fermentation. Cis- and trans-3-hexenol are not reduced to hexanol, but some is used by other pathways.

A. D. Webb (Davis)

ŠVEJCAR, V.: **Kontaminierende Mikroflora eines konkreten Winzerbetriebes** · Contaminating microflora of a viticultural farm

Wein-Wiss. **37**, 183—186 (1982)

In einem Winzerbetrieb wurden im Wein, an den Gerätschaften, Verpackungseinrichtungen, Wänden und Fußböden hauptsächlich *Saccharomyces cerevisiae*, *S. oviformis* und *Candida vini* gefunden. Da diese Hefen eine Gefahr für Weine mit Restzucker darstellen, wird wiederholte und sorgfältige Reinigung der Abfüllnadeln und eine geeignete Stabilisation des Weines empfohlen. Das Wachstum von *C. vini* läßt sich durch richtige Schwefelung und sorgfältigen Abschluß von Luftsauerstoff unterbinden.

E. Lück (Frankfurt)

USSEGLIO-TOMASSET, L., STEFANO, R. DI: **Variabilities in the production of volatile components with the same yeast strain** · Unterschiedliche Erzeugung von Aromastoffen durch den gleichen Hefestamm (ital. m. engl. Zus.)

Vini d'Italia **23**, 249—264 (1981)

Ist. Sper. Enol., Asti, Italien

This paper illustrates the fallacy of concluding that differences in volatile profiles account for differences due to a specific wine treatment, without proving this with sensory testing. Must was divided into 10 lots, inoculated with the same yeast strain and 5 fermented at 15 and 5 at 25 °C. Great variability was observed among replicate lots in volatile and ethanol concentrations, although there was a highly significant difference in volatiles as a function of the fermentation temperature. Two 15 °C wine lots, which had large differences in volatile composition, were not significantly different when compared by sensory difference tests. However, when 15 °C lots were compared with 25 °C lots, significant sensory differences were found. In one case, the part compared had very large differences in their volatile profiles, while in another, the volatile profiles were quite similar. Hence the flavor difference produced as a function of temperature were independent of the volatiles analyzed in this paper. A second important point made in this paper is the need for replication of wine fermentations, to be able to attribute variation in volatile composition to that between replicate lots versus that which is a function — as in this case of temperature — of the observed treatment.

A. Noble (Davis)