

Comparison of fungicides for rose disease control — cultivar 'Mary DeVore', Santa Ana, California

Fungicide and rate*	Disease rating†	
	Powdery mildew	Rust
1978 trial (applied Mar 25; Apr 4, 14, 25)		
Vanguard 10W, 9 oz.	0.7 a	...
Sisthane EC (2 lb.), 1.5 pt.	1.0 ab	...
Bayleton 25W, 8 oz.	1.2 b	...
Cit-Cop 4E, 2 qt.	1.8 c	...
Untreated control	3.3 d	...
1979 trial (applied Mar 14; Apr 4, 18; May 3, 16)		
Vanguard 10W, 7 oz.	0.3 a	...
Vanguard 10W, 11 oz.	0.5 a	...
Triforine EC 18.2%, 12 fl. oz.	0.6 a	...
Sisthane EC (2 lb.), 1 qt.	0.7 a	...
Untreated control	2.6 b	...
1980 trial (applied Mar 7, 20; Apr 4)		
Triforine EC 18.2%, 12 fl. oz.	1.4 a	0.8 a
Plantvax 75W, 1.3 lb.	4.8 c	1.2 a
BayCor 25W, 8 oz.	2.4 b	3.2 b
Daconil 2787 75W, 2.5 lb.	3.2 b	3.2 b
Untreated control	6.0 c	4.4 c
1981 trial (applied Mar 12, 26; Apr 8, 22)		
Triforine EC 18.2%, 12 fl. oz.	1.2 a	0.2 a
Vanguard 10W, 12 oz.	1.4 a	0.2 a
Bayleton 25W, 8 oz.	1.6 a	2.0 b
BayCor 25W, 16 oz.	3.5 b	1.6 b
Ciba Geigy 71818 10W, 10 oz.	5.2 bc	3.8 c
Plantvax 75W, 1.3 lb.	5.6 bc	0.1 a
Untreated control	9.0 d	7.0 d
1982 trial (applied Mar 4, 15; Apr 5, 15)		
Triforine EC, 12 fl. oz.	0.3 a	1.2 a
Ciba Geigy 71818 10W, 10 oz.	0.4 a	3.8 c
DuPont L6177 30%, 6.6 fl. oz.	0.3 a	1.5 a
EI 222 12.5%, 5 fl. oz.	1.0 b	2.8 bc
DuPont L6177 30%, 3.3 fl. oz.	1.6 c	2.6 b
No treatment	5.1 d	6.6 d

*Rates of materials per 100 gallons of water, 4 fluid ounces of Rohm and Haas Triton B-1956 spreader-sticker per 100 gallons water added to all fungicide suspensions. Sprays applied to runoff with a 2-gallon CO₂ pressurized Hudson sprayer at 30 psi.

† Significant at 5 percent level. Within each trial year, treatments with same letter are not significantly different from each other.

‡ Rated on a scale of 0 to 4: 0 = no disease; 4 = mildew completely covering both sides of leaves and numerous mildew colonies on petioles and stems.

§ Rated on a scale of 0 to 10: 0 = no disease; 10 = severe powdery mildew and rust development.

Albert O. Paulus is Cooperative Extension Plant Pathologist, and Jerry Nelson is Extension Staff Research Associate, both from University of California, Riverside.

A limited-resource producer cooperative is formed when several persons or families with low income join together to farm land that is either owned or rented by the group. These organizations contrast sharply with agricultural cooperatives organized to improve member access to product markets or to supplies. First, in pooling resources to form a cooperative, there is often not much to pool other than the labor each member-family can contribute. Second, the low-income producer cooperative movement in California is composed largely of former sharecroppers and farmworkers of Mexican descent. Their motivation is that they are likely to have more income and independence as owner-members than as hired laborers. Third, although limited-resource cooperatives are organized for economic purposes, most tend to have social goals as well, such as the improved health, education, and general well-being of their member-families.

California production cooperatives

There is a high turnover rate among low-income producer cooperatives and no official records document their numbers, but there may be as many as 20 or 30 in the state and at least as many "spin-off" farming partnerships and joint ventures. Through reports of field research, on-site visits, and correspondence, we have studied several cooperatives, representing a cross-section of types, to identify their origins, sources of support, economic status, and role in California agriculture. A summary is presented here.

California's low-income producer cooperatives

Refugio I. Rochin □ Steven Huffstutlar

They're suited for some labor-intensive crops

Cooperativa Campesina, Watsonville, Santa Cruz County. The origins of the oldest known limited-resource producer cooperative, Cooperativa Campesina, can be traced to a 1969 adult education class sponsored by Trabajadores Adelante (TA), a training and economic development agency funded by the U.S. Office of Economic Opportunity (OEO). A core group of six farmworkers organized themselves, raised \$3,000, and appealed for assistance to the Central Coast Counties Development Corporation (CCCDC). They were able to rent six acres of county land and obtain technical assistance. New members were selected from a CCCDC recruiting drive, bringing the total to 30 in the second year of operation. With further help from CCCDC, the Wells Fargo Bank, and OEO, Cooperativa Campesina became a million-dollar-plus strawberry operation by 1974.

Nine years and four farm sites later, a CCCDC offer of help to purchase and develop another farm, which was only of marginal quality, coincided with serious cash flow problems for the cooperative. CCCDC was not able to deliver the promised financing and subsequently closed its doors (in 1980). Cooperative members made plans to liquidate their operation and pay all debts by Decem-

ber 1981, but their voluntary plan was not adequate to satisfy creditors.

In 1982, Cooperativa Campesina was legally winding up its affairs under court supervision. Member families are now farming in smaller groups, as joint ventures or partnerships, continuing the land- and equipment-sharing methods of the cooperative. After more than 10 years of operation, the cooperative has "failed," but virtually every member family has succeeded in becoming a self-employed strawberry grower.

Cooperativa Central, Salinas, Monterey County. Like Cooperativa Campesina, Cooperativa Central was stimulated by TA. In 1972, 12 farmworker-organizers obtained an interest-free loan from OEO and one from the Bank of America with which they purchased farming assets from Stevall, Incorporated, a successful strawberry operation. The original 12 members contacted Stevall's 61 sharecroppers who had been receiving 50 percent of the returns per unit of output, offered them 55 percent, and organized them into the cooperative. The former owner remained with the group through the first year of operation in compliance with a stipulation of the bank loan; the bank gave careful financial guidance to the cooperative.

In 1977, Central purchased 700 acres

of land south of Salinas using Wells Fargo Bank and other private financing. By the 1980s, however, strawberry production had become less viable in the inland (Salinas Valley) weather zone, because of competition from new strawberry varieties grown closer to the coast. The cooperative had losses after 1978, compared with impressive net margins from 1973 to 1977. Attrition, too, is a problem: the membership decreased from 77 in 1973 to only 47 in 1980. Central now hopes to sell its valley land and move its operation closer to the coast, as have most strawberry growers from the Salinas area.

Rancho La Fe, Salinas, Monterey County. Assisted by a public works grant from the Economic Development Administration in 1972, CCCDC purchased a 112-acre farm, which they named Agri-Park, near Salinas. The idea was to lease the land to a cooperative to which CCCDC would provide educational, technical, and managerial assistance. After two or three years of experience, a cooperative was expected to have obtained sufficient skills and credit rating so that it could leave Agri-Park, making it available to a new cooperative venture.

Agri-Park was leased to a series of small groups, the last being a 12-member

cooperative called Rancho La Fe. The unique feature of this cooperative was that it farmed as one unit, with members performing management roles and hiring most labor. This was the only cooperative studied in which individual member plots did not account for almost all sales. Rancho La Fe began a greenhouse project; several attempts were also made to grow row crops, such as green onions and carrots. Production failures and conflicts among members and with CCCDC characterized most of the operating years. When, in 1976, the cooperative did not pay the rent, they were evicted from Agri-Park by court order.

Cooperativa La Paz, Salinas, Monterey County. This cooperative was organized in 1976 by seven former sharecroppers who had joined in a damage suit alleging underpayment and violation of antitrust laws against their large strawberry-growing employer. To obtain land and technical assistance, La Paz sought sponsorship of CCCDC. From 1977 to 1979, La Paz shared part of a leased farm with two other small cooperatives, Cooperativa Pajaro Valley and Cooperativa Strawberry Valley.

Seeking greater independence, La Paz, in 1980, leased 50 acres of land of its own but under exclusive contracts

for marketing and crop management with a produce brokerage firm. The broker provides La Paz with financing through the Production Credit Association. La Paz now has four member-families and appears to be both stable and profitable, although it has given up a certain amount of independence to its private broker sponsor.

Cooperativa Socios Unidos, Salinas, Monterey County. Socios Unidos was initiated in 1976 by 12 members, some of whom had been in Central. Each paid a fee of \$2,300 and contributed 1,000 hours of labor to the cooperative, in return for one-twelfth of the initial equity. The manager began as a member, but not being a producer on an individual parcel, he eventually had to sell his membership to the other members, after which he continued as an employee. Once established, the cooperative required less labor contribution from members for general ranch work, leaving the members free to concentrate on their own parcels.

In 1978, the cooperative expanded its 85-acre vegetable and berry operation by leasing an additional 75 acres near Chualar, but disappointing yields and a shortage of labor meant that the expanded project was short-lived. Also, membership decreased from the origi-

Information about three other low-income producer cooperatives

Name	County	Date of origin, membership, sponsorship, funding sources, type of operation	Acreage	Crops	Problems	Termination date
La Tierra Nueva of Yettem	Tulare	1970. Organized by <i>Universidad de Atlan</i> , formerly Chicano Studies Department, Chico State University. Grant and loan received from Campaign for Human Development, U.S. Catholic Conference. Members paid dues and were in the cooperative to earn supplemental income.	60, owned	Tomatoes Cherry tomatoes Chili peppers Squash	The part-time nature of this cooperative.	1980
Cooperativa La Colonia Mexicana Unida	Yolo	1979. Grew out of another 12-member cooperative. Received help from Woodland Farm Worker Service Center and a grant from Campaign for Human Development.	200, leased from the state	Wheat	High overhead. Need for better management. Area not well suited for the labor-intensive crops necessary for a successful cooperative.	Still in operation.
Cooperativa Agricola Campesina de Trabajo	Santa Barbara	1975. Aided by peer-training project <i>Tecnica, Inc.</i> ; 28 members originally.	140, leased	Berries Chili peppers Cherry tomatoes	Financing. High attrition rate. Poor harvest in 1979.	1980
Cooperativa Tizoc, Quadalupe	Santa Barbara	1979. Started as labor organization. Works as crew for a large farmer-contractor sharing net returns with him. Aspires to use profits to buy land.	...	Lettuce	Does not yet control a piece of land.	Still in operation.

nal 12 to 8 by 1980. The 1980 operations, however, were profitable and the cooperative purchased its 64-acre farm with financing from the National Consumer Cooperative Bank. On the basis of income per member and equity, this cooperative is the most successful of those we examined.

Cooperativa Unida Nacional, Nipomo, Santa Barbara County. Unida Nacional began operation in 1977 with 58 members, most of whom were fully employed as farmworkers or sharecroppers on other farms. A 152-acre parcel was purchased with member investments of \$1,400 each for the down payment. Internal dissention developed when one part of the group wanted to liquidate for a quick profit and the other part wanted to farm. The dissenting investor-members have since left, but their terms of separation are still under negotiation.

Meanwhile, several remaining members are farming full time at the cooperative and others have indicated interest in joining. With the completion of the irrigation system, made possible by a grant from the Campaign for Human Development, and increased motivation for farming among remaining and new members, Unida Nacional may be more successful in the future.

Unida Nacional still depends on each member's annual payments of about \$1,500 to cover the mortgage and taxes whether or not the member is actively farming (some members are still in the cooperative as investors only). All production is financed by the members; the cooperative does not borrow for its farming operations.

Common features and problems

The California cooperatives vary in size, degree of success, and mode of operation, but they share some characteristics — and problems. Members seek to improve their family income over that earned as hired farm laborers, and they aspire to control land. Through the organization, they hope to further their cause as an ethnic minority group and achieve increased social and political status.

Although cooperative members as former farmworkers are well acquainted with the manual aspects of a farming operation, many lack farm management skills, most don't know how to deal effectively with financial institutions or where and how to obtain technical assistance, and they tend to be unfamiliar with the workings of the supply and marketing systems. These disadvantages are compounded by a lack of fluency in English and by little formal education, both of which add to the difficulties of acquiring the needed skills.

Existing formal educational institutions are generally not geared to serving the low-income, ethnic, farmworker population. Informal, directly relevant educational projects are more likely to produce results. One noteworthy educational venture was *Tecnica, Inc.*, a peer training project conducted by members of *Cooperativa Central*. With funds provided by state CETA (Comprehensive Employment and Training Act) between 1976 and 1979, *Tecnica* reached out to share with other farmworkers what they knew about organizing and running a cooperative venture.

Up until the late 1970s, a sponsor, such as a community action program agency or a community development corporation, was considered essential as a liaison to sources of financial and technical assistance. The sponsor helped to obtain initial and operating capital, to negotiate for the rental or purchase of land, and to give or procure assistance in business administration, farm management, and marketing. Sponsors, however, dependent themselves on year-to-year funding, could offer the cooperative no more financial stability than they themselves had. Problems also arose when the government-funded sponsor, in its advocacy for the cooperative, created a dependency that was eventually resented.

In the late 1970s, two new kinds of intermediary organizations evolved and have supplanted government-funded sponsors. The first is a farmer-controlled intermediary, *Confederacion Agricola*, organized in 1978. Its board of directors is composed of representatives of each cooperative, plus independent small farmers; its staff includes experienced former production cooperative organizers, bookkeepers, and managers. The *Confederacion* does not sponsor new cooperatives or recruit cooperative members, but rather it responds to requests for technical assistance from self-organized cooperatives and other small farmers. The *Confederacion* policy is to avoid playing any direct financial role with cooperatives but to encourage their hiring competent management. The cooperatives support the *Confederacion* with dues and fees for service.

Various private sector entities constitute a second type of intermediary organization in association with cooperatives. Some coastal cooperatives have established relationships with agricultural firms; two (*La Paz* and *Tizoc*) have private sector sponsors. Through joint ventures, marketing and technical assistance contracts, and sharecrop arrangements, production cooperatives are becoming integrated into existing local agribusiness yet maintain their social functions and continue to pursue even-

tual independence as producers or landowners.

High turnover and attrition are an inherent part of nearly all types of cooperative venture. Some attrition occurs when the cooperative does not produce an adequate income for members as, for example, with a crop failure. High attrition rates may also result from a free-rider problem. The member who finds himself subsidizing the others by his efforts may decide that he can do better for himself as an individual operator than with the group. In this case, attrition may mean that the cooperative, while failing in one sense, has been successful in preparing at least some of its members for independence.

Financial problems may develop when cooperatives make further capital investments to expand operations. In acquiring more acreage or purchasing new equipment, some cooperatives have become overextended in times of prosperity without leaving sufficient reserves for less prosperous times.

Success of a cooperative is highly dependent on members' affinity for one another and on their mutual attitude toward their venture. Some cooperatives were actually started by the sponsoring agency or additional members were recruited by the sponsor to meet the funding agency's requirements. Only when the cooperative is born from the "bottom up" will the high degree of social cohesion essential for success exist naturally.

Since 1975, all the coastal low-income production cooperatives have been self-initiated. Although self-organized cooperatives tend to have one necessary ingredient — social cohesion — success is not thereby guaranteed. Its absence, however, means certain failure.

Conclusion

Production cooperatives are particularly suited to certain labor-intensive crops in which highly motivated individuals working together create the potential for a group effort that is more than the sum of its parts. For California low-income farmworkers, the cooperative system is an alternative means of gaining self-sufficiency in the agricultural economy. The lessons learned may result in the conversion of more farmworkers into owner-operators of farms.

Refugio I. Rochin is Associate Professor, Department of Agricultural Economics, University of California, Davis; and Steve Huffstutlar is Agricultural Marketing Specialist, U.S. Department of Agriculture, Agricultural Cooperative Service, Salinas, California. Carole Frank Nuckton, Research Associate, Department of Agricultural Economics, Davis, edited this summary of the project report. The authors wish to thank William Alvarado-Greenwood of Confederacion Agricola for helpful comments on an earlier draft.