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APRICOT PRODUCTION 81

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Apricots are produced in most of the major fruit-growing areas of the world. The chart below lists the principal countries producing apricots for canning.

Principal Countries Producing Canned Apricots

Country	1976	1977	1978	1979	1980	1981
Australia	423*	602	338	640	341	545
Canada	49	34	46	47	66	31
Greece	1,599	2,186	500	1,250	1,665	2,500
South Africa	480	732	794	925	1,098	707
Spain	700	300	900	300	225	735
United States	2,387	2,269	2,127	2,887	2,994	1,208

* 1,000 cases, 24-2½ size

Other countries with important production include Argentina, Chile, France, Italy, Turkey, Yugoslavia, and New Zealand. Turkey is a large producer of dried apricots. Other important dried-apricot-producing countries are listed below.

Country	1979-80	1980-81
Australia	2.4*	1.3
Iran	4.0	---
South Africa	1.5	1.7
Turkey	12.0	7.0
United States	4.8	3.0

* dried, 1,000 metric tons

Apricot production in the United States is found principally in California, Utah, and Washington. At present, California has approximately 22,000 bearing acres, Utah and Washington together have about 800 acres.

Major producing areas in California include the San Joaquin Valley counties of Stanislaus, San Joaquin, and Merced. The coastal counties of Contra Costa, San Benito, Solano, Yolo, and Santa Clara also have viable productions.

Acreage trends by principal apricot producing districts in California are shown on the attached sheet.

Total state acreage during 1983 included approximately 22,600 bearing and 1,845 nonbearing acres. In general, an industry must maintain at least 10% of its bearing acreage nonbearing in order to maintain present bearing acreage. It would appear as though the apricot industry in California will continue to decline.

ACREAGE TRENDS

DISTRICT	YEAR	BEARING	NONBEARING	YIELD TONS/ACRE
Stanislaus County	1976	10,081	1,244	7.4
	1978	9,385	279	7.3
	1980	9,205	239	8.2
	1981	8,843	763	4.3
San Joaquin County	1976	3,265	46	6.3
	1978	3,093	48	5.1
	1980	3,111	105	6.5
	1981	3,044	238	4.0
Contra Costa County	1976	1,589	80	2.7
	1978	1,341	97	3.7
	1980	1,301	227	2.7
	1981	1,287	378	3.7
Solano and Yolo Counties	1976	4,055	42	3.0
	1978	3,713	20	1.6
	1980	2,291	53	2.2
	1981	2,307	38	3.4
Merced County	1976	1,781	190	5.6
	1978	1,570	59	5.0
	1980	1,507	5	9.0
	1981	1,407	80	6.3
San Benito and Santa Clara Counties	1976	4,399	78	5.1
	1978	4,266	27	4.6
	1980	4,470	63	4.7
	1981	3,746	20	5.9

Apricots are produced for fresh market (both inter- and intrastate) processing (canned, frozen, and dried). Following may be found the percentage of the crop marketed in each category.

Market Outlets for Selected Years

Outlet	1971	1973	1975	1977	1979	1981	1982	Average 1971-76	Average 1977-82
Canned	69%*	76%	76%	59%	60%	45%	55%	70.0%	57.8%
Dried	18	14	14	27	27	35	29	17.2	27.0
Frozen	5	6	6	8	8	11	10	6.7	8.7
Fresh	8	4	4	6	5	9	6	5.5	6.5

* Per cent of total crop canned, etc.

Prices paid by canners to growers, while not giving a complete pricing picture, do indicate overall changes in pricing. The chart below lists year, bearing acreage, average yield, price per ton to growers, and canner f.o.b. price per case of fruit.

Apricot Production and Pricing

Year	Acres Bearing	(Tons/A) Average Yield	Price/Ton	Canners' f.o.b. price/case
1971-72	30,861	5.80	$ 61.00	$ 6.15
1973-74	28,391	5.25	135.00	9.00
1975-76	28,750	6.05	157.00	12.75
1977-78	27,422	5.21	155.00	14.25
1979-80	24,180	5.79	240.00	16.40
1980-81	24,340	4.72	277.00	16.95
1981-82	22,586	4.34	270.00	20.25
Average	26,647	5.31	185.00	13.68

From the chart it is interesting to note that while prices received by growers have shown a gradual increase, yields per acre have remained about the same. Acreage has shown a dramatic drop, and f.o.b. prices received by canners have more than doubled.

During the past few years, growers through their association, "The Apricot Producers of California," have negotiated prices for their processing fruit. Prices negotiated for and received varied with varieties, use, and quality. Listed below is a breakdown of prices for the past two years (1982 and 1983).

Prices Received

Outlet	Price/Ton	Variety
Freezer	$277.50	Westley, Blenheim, and Patterson
	272.00	Modesto
	262.50	Tilton
Drier	285.00	Westley, Blenheim, and Patterson
	272.50	Modesto
	257.50	Tilton
Canning	270.00	Blenheim and Tilton
	283.50	Modesto
	297.00	Patterson
Manufacturing (#2 grade)	240.00 ('82)	All varieties
	250.00 ('83)	Blenheim and Westley
	240.00 ('83)	All others

While acreage, yields, and price changes tend to indicate the direction an industry is taking, a fourth indicator, trends in the number of growers, should be a consideration. Listed below in chart form is a comparison of apricot and cling peach growers.

Changes in Numbers of California Apricot and Cling Peach Growers

Year	Number of Cling Peach Growers	Number of Apricot Growers
1971	1,607 (47,058* acres)	1,009 (30,861* acres)
1973	1,352 (49,412 ")	699 (28,391 ")
1976	1,269 (45,951 ")	595 (27,706 ")
1979	1,021 (39,805 ")	520 (24,180 ")
1982	828 (33,554 ")	462 (22,586 ")

* Bearing acres

Changes in grower numbers and acreage have shown a dramatic trend downward during the past 10-year period. A similar change in both grower numbers and acreage of cling peaches has occurred during the same period. What crops replaced the combined apricot and cling peach acreage removal? Almonds? Walnuts? Grapes? Probably, since orchardists normally remain in the orchard business.

In conclusion, apricots remain an important crop in California. With less bearing acres, improved prices, and the gradual decrease in the percentage of the crop canned, the percentage of the total crop dried has increased. The percentage of the crop sold to freezers and fresh has also increased, but on a more limited basis.

A further decrease in acreage may put the apricot grower at a disadvantage in bargaining and supplying sufficient quantities of fruit to customers.

CLIMATE

In most years enough hours below 45°F (1000±) are to be had to break the rest period of the buds. However, bud drop has been observed to the extent of reducing the crop dramatically. The Tilton variety seems to have a greater chilling requirement than Blenheim. Some observers believe the new varieties, Modesto and Patterson, may be even less affected by mild winters than the standard varieties. Frost is generally not a serious problem on the west sides of Merced, Stanislaus, and San Joaquin Counties--at least, frost protection equipment has never paid for itself. Hail damage has occurred. In most years, the crop is harvested prior to high, extended summer temperatures. On occasion, some pit burn has been observed in Blenheim. In general, the springs are drier during bloom than those of the east side. This fact reduces the chance of blossom brown rot epidemics. Serious problems with brown rot have occurred in the years 1958, 1967, 1969, 1974, and 1983. Summer rains occurring as the crop is maturing can cause the development of serious fruit brown rot losses.

Because effective rainfall is somewhat less on the west side of the San Joaquin Valley, the last irrigation of the season must supply moisture well into late fall and early winter. The first irrigation in the spring is generally applied in early April shortly after thinning; midwinter irrigations should be considered.

SOIL REQUIREMENTS

Soils adaptable for growing apricots are probably not as exacting as those needed for successfully growing peaches or almonds. The better soils of the west side of Stanislaus and San Joaquin Counties for apricot production include the Sorrento, Vernalis, Salado, and Zacharias series. Generally, the loams and clay loams are most satisfactory for consistent growth and production. Heavy soils, water tables, salt, or boron problems should be avoided as planting sites, as should shallow soils. Many orchards in the Stanislaus-San Joaquin area are being grown on soils with very low infiltration rates; this problem generally is characteristic of the soil series. Some of the soils have gravel layers which drain well; however, special attention to irrigation frequencies is necessary. A grower with a poor orchard soil does not compete for long. The better soils are more forgiving following cultural mistakes.

IRRIGATION REQUIREMENTS

The irrigation season for apricots normally begins in early April, particularly for those orchards grown in low rainfall areas of the Westside of San Joaquin, Stanislaus, and Merced Counties. Irrigation timing during the preharvest period must be concerned not only with moisture needs of the trees but also other timely cultural practices. Most growers irrigate for the first time directly following thinning. The second preharvest irrigation must be timed around the application of a peach-twig-borer-control spray in May. The third preharvest application is made as close to harvest as possible.

Most growers attempt to apply up to one acre-foot of water per irrigation in each of the first two irrigations. This is necessary in order to fill the root zone and because many of the soils absorb water at decreasing rates as the season progresses.

Following harvest, many growers apply half of the seasonal fertilizer needs and irrigate. A second and a third post-harvest irrigation is applied. Because many of the falls and early winters are dry, the last post-harvest irrigation is necessary to provide the tree with sufficient late moisture. Water applied during the season

amounts to 3 to 5 acre-feet per acre. The actual moisture needs of the apricot tree and its crop are probably no different from other tree crops. However, because of the climatic and soil conditions of the Westside of San Joaquin, Stanislaus, and Merced Counties, additional water and application times are necessary. Cultural practices necessary for production also tend to modify application timings. As with all other tree crops, water quality is very important to continuing production of economic crops.

Water sources generally are from irrigation districts; some growers pump from deep wells. Water is distributed in the orchard utilizing furrows and flood and with limited use of sprinklers and drip.

In orchards where water infiltration rates are reduced, growers have changed to noncultivation and flood irrigation as a means of improving their application depth. Some growers are planting on slight ridges, anticipating going to noncultivation and flood irrigation. Some growers are giving additional consideration to sprinklers and drip irrigation. As with all other tree crops, the apricot responds well to good moisture conditions.

FERTILIZER REQIREMENTS

Nitrogen is the principal nutrient applied each year. Zinc-deficient trees are found on occasion and the problem is corrected by zinc sprays applied either in the fall, just prior to leaf drop, or in the spring. Potassium problems occur at a very infrequent rate in Westside orchards. At times, potassium levels in leaves are low where excessive salt levels are found.

Amounts of nitrogen applied vary with the area, market outlet of the crop, and the variety. In general, trees which produce fruit for fresh market receive lower amounts of nitrogen, and it is generally applied after the crop is harvested. This practice keeps the trees in fair vigor without delaying maturity. The Tilton variety generally responds in a more positive way (additional yield, fruit size, and return bloom) to higher rates of nitrogen than does Blenheim.

Some growers have found it advantageous to apply part of the nitrogen requirement in the spring with the first irrigation and the remaining nitrogen following harvest. This approach tends to increase the effectiveness of larger rates of nitrogen while reducing the possibility of fruit maturity problems.

The chart below lists suggested rates of nitrogen for several different conditions. It is best, however, for the individual grower to use his own experience as well as previous years' tree and crop conditions to determine current fertilizer rates.

	Lbs/Acre Nitrogen
Fruit for fresh market	40 lbs. N applied after harvest
Blenheims for processing	40 to 100 lbs. N, one-half applied prior to first irrigation; second half after harvest and prior to first post-harvest irrigation
Tiltons for processing (Modesto and Patterson?)	100 to 150 lbs. N, one-half applied prior to first irrigation and second half just prior to first post-harvest irrigation

Critical nutrient levels for apricots can best be determined by chemical leaf analysis. Listed below in chart form are critical nutrient levels for apricots, with cling peaches as a comparison.

	Nitrogen		Potassium		Zinc
	Defic.	Adequate	Defic.	Adequate	Adequate over
Apricots (Shipping)	1.8%	2.0-2.5%	2.0%	2.5%	16 ppm
Apricots (Canning)	2.0	2.5-3.0	2.0	2.5	16 ppm
Peaches (Cling)	2.4	2.6-3.5	1.0	1.2	18 ppm

For a more complete discussion see "Soil and Plant Tissue Testing in California," U.C. Bulletin 1879, pages 12-14.

ROOTSTOCKS

Apricots are grown on apricot, peach, and plum rootstocks. Apricot is the preferred rootstock. Tree size, vigor, and productivity are less where plum rootstock is used. The plum rootstocks, however, will do better in soils too heavy or wet for the apricot rootstock. Trees grown on peach rootstock may mature their crop a bit earlier than those on apricot; however, many soils are too heavy for peach root. The peach rootstock, Nemaguard, offers no advantage over apricot root since both are resistant to the root knot nematode.

Trees grown on plum rootstocks may be smaller than those on apricot when grown on good soil. Two selections of plum rootstock are used--Myro 29C and Marianna 2624. Both produce good trees and seem to be equal in tolerating soils too heavy for apricot root. Marianna 2624 is resistant to oak root fungus. Both rootstocks sucker badly; perhaps Myro 29C is less of a problem in this respect.

Peach tree borer tends to prefer the plum and peach rootstock over apricot; however, all rootstocks are seriously affected by this pest.

VARIETIES

The following chart lists the more important apricot varieties grown in California. Also included is information on their principal use.

California Apricot Varieties, Including Acreage and Use

Variety	State Acres		Use*
	Bearing	Nonbearing	
Blenheim	9,690	365	F, D, C & Fr
Castlebright	45	79	F
Derby	346	1	F
Flaming Gold	175	60	F
Flaming Gold, Improved	30	62	F
Hemskirke	69	0	D
Katy	48	132	F
Lulu Bell	64	0	F
Modesto	886	70	F, D, C & Fr
Patterson	457	949	F, D, C & Fr
Pomo	115	0	F
Royal Derby	96	0	F, D
Tilton	10,027	41	F, D, C & Fr
Other	552	86	--

* F = Fresh; D = Dried; C = Cannery; Fr = Freezer

From the above chart it is apparent that the most important varieties in California include Tilton, Blenheim, Patterson, and Modesto. Tilton and Blenheim are old standard varieties and Modesto and Patterson are newer varieties which are increasing in importance. Included in this group are two other important new varieties, Westley and Tracy. Of these, Westley has received the most interest by growers and processors as a variety of quality for freezing and drying.

In general, Tilton outyields Blenheim. The tree is more vigorous and will respond profitably to higher rates of nitrogen. The Tilton variety may ripen more evenly than Blenheim. However, Tilton suffers to a greater extent than Blenheim to less-than-minimum cold hours. Pit burn can be a serious Blenheim problem. The factors which predispose apricots to alternate bearing are found with both varieties. The flavor and color of Blenheim are generally superior to Tilton. Overall, most growers feel that the Blenheim variety is more difficult to produce than Tiltons.

New improved varieties for canning, drying, and fresh market have been sought by the industry. The need for better quality has become apparent to all, if the apricot industry is to reverse its downward trend. Along with fruit quality, a new variety must possess those characteristics which will allow for present day production methods and economics.

New candidate varieties have come from several sources including chance seedlings, USDA and University of California breeding programs, foreign introductions, and private plant breeders. Mr. Fred W. Anderson of LeGrand, a private plant breeder,

has released the important new varieties, Modesto, Patterson, Westley, and Tracy.

At this time, it would be safe to say that the variety Patterson is at least equal to Tilton from a grower's standpoint. Its yields have been good, and fruit matures more evenly than Tilton--both the individual fruit as well as the total on-tree crop. The fruit is firm. This, coupled with its even maturity, would generally make one think that it will mechanically harvest perhaps better than Tilton.

None of the Anderson varieties appear to be as sensitive to blossom brown rot as Blenheim. Patterson and Modesto do not appear to pit burn, and mild winters have had a minimum effect on bud drop. Patterson has better color than Tilton. While most observations have been on younger trees, both Modesto and Patterson do not appear to alternate bear to the extent of Blenheim and Tilton. Trees of both Modesto and Patterson appear to have at least as good tree vigor and characteristics as both Blenheim and Tilton. They both bear crops at a young age. I do not know if these plus characteristics will continue with age. There are still a number of questions concerning the productivity of Tracy and perhaps Westley. At this time Patterson is being planted as a replacement for Tilton.

In the following chart is listed very tentative information on several of the more important varieties. Bloom and maturity dates are quite variable, depending on area, farming practices, tree age, and season.

Comparative Information on Several of the More Important Varieties

Variety	Bloom Date[1/]	Maturity[2/]	Set	Remarks
Blenheim	-5	-8	Very light to heavy	Alternate bears badly; pit burns; yields generally less than Tilton
Tilton	0	0	Very light to very heavy	Alternate bears; severely affected by mild winter temperature
Modesto	-2	-5	Moderate, consistent set	Less affected by mild winter than Tilton; good tree vigor
Patterson	-2	+4	Moderate to heavy consistent set; good annual crops	Very even maturity; less affected by mild winter than Tilton; good tree vigor
Tracy	0	+8	Light to moderate	Very firm fruit; very deep color
Westley	+4	+12	Moderate	May alternate bear; very large fruit

1/ Bloom for Blenheim normally begins during second week of March (Tracy area)
2/ Blenheim harvest begins the second to third week of June (Tracy area)

The following two charts are listed to show processing quality differences in several varieties. Tree age, season, growing practices as well as harvest maturity and post harvest handling have an effect on processed quality.

Canned Apricot Evaluations

Industry Taste Panel 2/23/78

Selection	Appearance Flavor	Flavor	Overall Appearance*	Color*	Firmness*
Blenheim	18.72	7.2	2.6	2.7	2.3
Tilton	16.75	6.7	2.5	2.2	2.6
Modesto	11.34	6.3	1.8	3.4	1.9
Patterson	16.82	5.8	2.9	2.6	2.7
Royal	19.17	7.1	2.7	3.6	2.3
Tracy	27.00	7.5	3.6	3.6	3.2
Westley	16.10	7.0	2.3	3.7	2.4

* 1 = poor; 5 = excellent

Characteristics of Dried Samples of Several Apricot Selections - 1975

Variety	Source	Moisture %	Soluble Solids %	Drying Ratio	Flavor
K-111-6	USDA Fresno	22.7	11.1	7.33:1	2.0
K-53-57	USDA Fresno	16.6	14.5	6.63	1.0
K-55-39	USDA Fresno	16.6	13.4	6.18	1.0
Royal	Winters	18.7	18.5	5.78	2.8
Tracy	LeGrand	25.7	17.4	5.47	1.8
Modesto	Patterson	14.5	14.8	6.19	2.8
Patterson	Patterson	18.6	17.1	6.45	---
Castleton	USDA Fresno	15.3	14.1	6.77	1.8
Westley	Patterson	18.2	13.8	6.63	2.7
Tilton	Patterson	16.7	14.5	7.06	2.8
Blenheim	Hollister	11.6	16.3	5.68	2.8

In selecting varieties, growers should be sure that the variety they are selecting is one that is desired by whoever is going to buy the crop.

ALTERNATE BEARING

All tree crops have the ability to alternate bear; however, the problem is generally more serious with apricots. While individual trees will alternate bear, most orchards tend to produce about the same amount of fruit each year. Good early thinning practices along with moderately high nitrogen regimes, proper pruning and irrigation will tend to level out orchard alternate bearing.

PRUNING

This important annual cultural practice can be accomplished either by utilizing hand crews or by large mechanical toppers and hedgers. Both methods seem acceptable on mature trees. Generally, the mechanical topping is faster and costs less than by hand. Where mechanical topping and hedging is used, a hand crew must be sent through every 3 to 4 years to remove excessive branches, particularly in the interior of the tree. Most growers contract their mechanical tree pruning for the period of October to November. This is necessary because the equipment used is very large and heavy and can not operate in wet orchard soils.

During the training years in an orchard, the very best pruners should be hired. In addition to the regular pruning, most growers spend time removing dead, diseased, and broken limbs on an annual basis.

THINNING PRACTICES

Apricots respond well to proper and early fruit thinning. Trees which produce crops for fresh market consumption normally require the most exacting thinning. Many fresh market growers thin the crop down to a single fruit per each spur. Additional consideration is given leaving fruit which is exposed for early coloring. Normally fruit in the upper and outer part of the tree matures first. This factor should be considered not only with fresh market orchards but also orchards producing processing fruit.

Thinning should begin as early as possible, just ahead of or as the tip of the pits begin to get hard. Delaying thinning will have a marked tendency to reduce the amount of bloom the following year. If the delay is extended it contributes to both smaller fruit size and later maturity. In general, hand thinning utilizing poles for removing the fruit is still used where fresh market fruit is produced. Trees producing crops for processing are generally thinned by the use of mechanical trunk shakers. This approach, as it has evolved, works quite well. It is both rapid, timely, economical, and generally adequate insofar as degree of fruit removal. Trees thinned with trunk shakers generally need little or no additional thinning. Some growers prefer the shaker operator to do about 80 per cent of the job and then follow up with a few qualified thinners utilizing poles. This approach tends to eliminate overthinning by the shaker. Trunk injury from the shaker can be severe when improper care and too much speed are allowed. Trees which have been mechanically thinned generally produce mature crops which are easier to harvest mechanically than those thinned by hand. This occurs by the way the shaker removes the fruit--the upper tip fruit first and then the lower fruit. This leaves more fruit situated in similar maturity areas of the tree. Thus more of the fruit is in the same maturity range at one time, a desirable condition for better mechanical harvesting. Overthinning can be just as costly as late or inadequate fruit removal.

HARVESTING PRACTICES

Harvesting of fresh market varieties begins in May and continues into June and early July. Fresh market fruit is picked by hand. Padded buckets are used to protect fruit from injury. The fruit is handled from the orchard to the packing shed in either padded field lugs or in half-size bins. Generally fresh market picking crews

are paid by the hour; however, some growers pay by the bucket. Usually each tree is picked three or more times, depending on the variety and the season and on pruning, thinning, and fertilizer practices.

Fruit for processing is generally picked by hand but may at times be mechanically harvested. Picking crews move down rows, utilizing ladders and picking buckets. They harvest that part of the crop which is at proper maturity. Normally no more than two picks are made.

In general fruit for processing is picked at a stage less mature than would be desirable for out-of-hand eating. By doing this, there is normally less loss from soft fruit mashing, and the range of maturity in the finished product is somewhat less.

Hand harvesting is done in "six-row sets." By this method, bins with workers who act as sorters and checkers are set up in the middle of the six rows, and the pickers work the trees in three rows on each side. The pickers bring the fruit to the checkers who record the number of buckets each picker picks. The fruit is dumped into the field bins, and the sorters toss out cull fruit. The filled bins are generally removed from the orchard by fork lifts and bin trailers to the roadside where they are loaded on trucks and taken to the cannery receiving station for weighing and grading prior to being sent on to the cannery.

Mechanical harvesting is proven and practical. Between 10 and 20 per cent of the crop is mechanically harvested. Each tree is harvested separately. If the tree does not have a goodly percentage of the fruit at the desired maturity stage, it is skipped and the harvester moves on to the next tree. In order to properly harvest an orchard by machine, at least two and probably three passes down a given pair of rows are made.

Mechanical harvesting includes a catching frame with an attached trunk shaker, a bin carrier, and generally a crew of five including an operator, two sorters, a groundman, and the bin carrier operator. Quality secured from mechanical harvesting can be reasonable. Cost of the equipment ranges from $35,000 to $55,000--no small amount. Generally mechanical harvesting is done by custom operators at a cost of $25.00 to $30.00 per ton roadside.

PRINCIPAL PESTS AND DISEASES

Only the more important pests and diseases are included.

I. Insects

A. Scale

1. Brown apricot
2. Black
3. San Jose

These pests can cause a reduction in fruiting wood and tree vigor as well as fruit quality. Control: Regular dormant sprays containing oil plus parathion or Diazinon give good control.

B. Peach twig borer - This pest is a constant threat. Normally the program mentioned above for scale control also controls this pest. Under some field conditions growers may have to spray again in May. Either parathion or Diazinon, properly timed, will control this pest.

C. Minor pests

1. Codling moth
2. Orange tortrix
3. Fruit tree leaf roller

These pests generally can be kept below economic levels by sprays as above for the May brood of peach twig borer.

D. Pacific peach tree borer - This insect is becoming more serious each year. It is now found on the west side of the San Joaquin Valley. The pest is to be found in the crown and trunk areas during most of the year (larval stage). Adults are to be found from mid May through late July and later. Control is directed towards the larvae entering or exiting the crown or trunk. Thiodan spray applied to the trunk and crown areas in mid May and again after harvest (mid July) will give good control. The pest mines the crown and trunk of the tree; in time, the tree gets weak and useless. There is but a single brood each year.

E. Mites - Both European red and two-spotted mites can be serious problems during and after harvest, particularly in dusty, dry areas of the orchard. Control measures include spraying drive rows as well as orchard rows with a spray containing Omite. At times it may be necessary to spray the entire orchard.

II. Diseases

A. Brown rot (M. laxa) - This serious disease affects blossoms, small fruit (jacket stage), and maturing fruit. It overwinters on infected twigs and blossoms and may infect the flower as early as red bud stage. Controls include the use of the eradicant material, sodium pentachlorophenate, applied during early January. Preventive materials are applied during the early bloom stage (red bud). Materials used at this time include

benomyl, captan, maneb, and copper. If bloom is prolonged or if extended rains occur, a second spray will be necessary.

B. Shot hole - Can be serious during wet springs. It can reduce early leaves and render fruit useless. Control measures include copper or ziram sprays at red bud, and follow-up sprays if necessary with ziram or captan. The disease overwinters in infected buds.

C. Cytosporina - This serious, canker-causing disease is spreading and causing additonal losses of limbs in all apricot-growing areas of the state and the world. Infection occurs in pruning wounds, and generally after 2 to 5 years the infected limb is girdled by the growing canker and dies. Prior to this, production is reduced. Spores are spread by windblown rains. To date, control measures are lacking. It may help to prune during the mid-winter when the spore level is at a minimum. Early pruning (October, November, and December, as practiced in San Joaquin County) is, perhaps, the very poorest time to prune from an infection standpoint.

MONTHLY CULTURAL PRACTICES

November - Prune

December - Prune, remove large limbs, rake and shred or burn brush

January - Dormant spray

February - Prebloom (red bud) spray

March - Bloom spray

April - Thin, cultivate, furrow out, fertilize, and irrigate

May - Cultivate, spray (twig borer), furrow, and irrigate

June - Irrigate, cultivate, harvest (Blenheims)

July - Harvest (Tiltons), cultivate, fertilize, furrow, and irrigate

August - Cultivate, furrow and irrigate, spray for mites

September - Cut Cytosporina-infected limbs, irrigate

October - Cultivate, prune

Some growers will apply half their fertilizer needs in January or ahead of the first irrigation and the other half just ahead of the first post-harvest irrigation. In addition, other miscellaneous jobs would include cleaning up after harvest, replanting trees, and repairing equipment, as well as weed spraying in the late winter.

October 1983