

REPORT OF  
Twentieth Annual  
Date Growers' Institute

APRIL 24, 1943



HELD IN  
COACHELLA VALLEY  
CALIFORNIA

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# Twentieth Annual Date Growers' Institute

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**The Date Institute**  
Indio, California

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THE DATE INSTITUTE  
Indio, California

# Twentieth Annual Date Growers' Institute

## Saturday, April 24, 1943

Chairman: Dr. H. J. Webber, Director Emeritus, University of California Citrus Experiment Station, Riverside, California

### THE SPREAD OF OMPHALIA ROOT ROT BY OFFSHOOTS OF THE DATE PALM

By Donald E. Bliss, University of California Citrus Experiment Station, Riverside, California

Because of the favorable market for dates at the present time, it is likely that many gardens will be enlarged and that new orchards will be planted in the Coachella Valley of California. With such expansion there is likely to be considerable demand for planting stock and therefore considerable danger of spreading omphalia root rot, or decline disease, as it was formerly known.

Various types of control measures against omphalia root rot have been suggested, such as eradication with carbon bisulfide and the use of resistant date varieties. In this paper, however, I shall stress another type of disease prevention, namely, the planting of healthy offshoots in noninfested soil.

#### BACKGROUND

Let me first review some of the prominent features of omphalia root rot.\* Although this disease has affected only about 1 per cent of the total acreage devoted to date culture in the Coachella Valley, it is of great importance because of the threat it offers to the industry by its further spread. The trouble, first recognized in 1921, near Indio, is now known in 27 properties, all in Riverside County. Whether the disease was introduced to California on date palms from the Old

\*Bliss, Donald E. Investigations on the cause of decline disease in date palms. Date Growers' Inst. Ann. Rept. 11:4-6. 1934.

Bliss, Donald E. The spread of decline disease in date palms. Date Growers' Inst. Ann. Rept. 14:4-8. 1937.

Bliss, Donald E. Two new species of *Omphalia* which cause decline disease in date palms. *Mycologia* 30:313-26. 1938.

Bliss, Donald E. *Omphalia* root rot of the date palm. *Hilgardia*. (In press.)

World or whether it was indigenous to the Coachella Valley is uncertain although, from the evidence at hand, it is probable that the disease was introduced.

Two species of fungi, *Omphalia pigmentata* Bliss and *O. iralucida* Bliss, have been shown experimentally to be the causal agents of the disease. The typical primary symptom is a necrotic lesion which is usually confined to the underground portion of the palm and its developing offshoots. The abortion of young primary roots is the most damaging type of injury. Secondary symptoms include premature wilting and death of the older leaves, the retardation of terminal growth, the reduction in size and number of fruit stalks, and the development of small, worthless fruit.

The date palm, *Phoenix dactyifera*, appears to be the only naturally infected susceptible; but the susceptibility of the native fan palm, *Washingtonia filifera*, and of the ornamental date palm, *Phoenix canariensis*, has been demonstrated by artificial inoculations.

The length of time between infection and the appearance of secondary symptoms (latent period) may vary from a few days to five years or more, depending on the size and age of the palm, the concentration of the fungus, and the environment. With the Deglet Noor variety, a rather sudden decrease in vegetative vigor follows the appearance of the secondary symptoms, and, finally, an equilibrium may be reached between the fungus and the palm whereby the latter continues to live at a very subnormal level of health. While the reactions of Deglet Noor palms to omphalia may include severe stunting in addition to death of roots,

the reactions of palms of other varieties may include only a slight amount of injury in the roots.

Because of the length of the latent period, infected but healthy-appearing palms commonly occur at the margin of an enlarging diseased area. It is not always safe to conclude, therefore, that a healthy-appearing palm is free from omphalia root rot. To be reasonably sure, it is necessary to examine the roots and to make culture tests for omphalia in the laboratory.

Omphalia root rot is spread by the mycelium of the causal fungi. Spores are thought to be of little or no importance in this regard. The disease may spread outward in all directions from an infected palm at the rate of 30 to 60 feet per year. New foci of disease are usually created by transplanting offshoots from diseased palms. When planted in infested soil, healthy offshoots of the Deglet Noor variety became badly diseased, while Khadrawy offshoots are only slightly injured. There is observational evidence that the Khadrawy, Halawy, Iteema, Tazizaoot, Khustawy, Zahidi, and Tafazwin varieties, and many seedlings, possess considerable tolerance to the disease.

The health of slightly affected palms has been improved by making heavy applications of water and fertilizer. The response of severely affected palms, however, has been less encouraging. In fact, there has been no practical evidence of recovery in very sick palms.

#### PRESENT SITUATION

Let us consider the present situation regarding omphalia root rot. The disease is known only in Riverside County, California. The principal areas of infestation are situated in the Coachella Valley in a re-

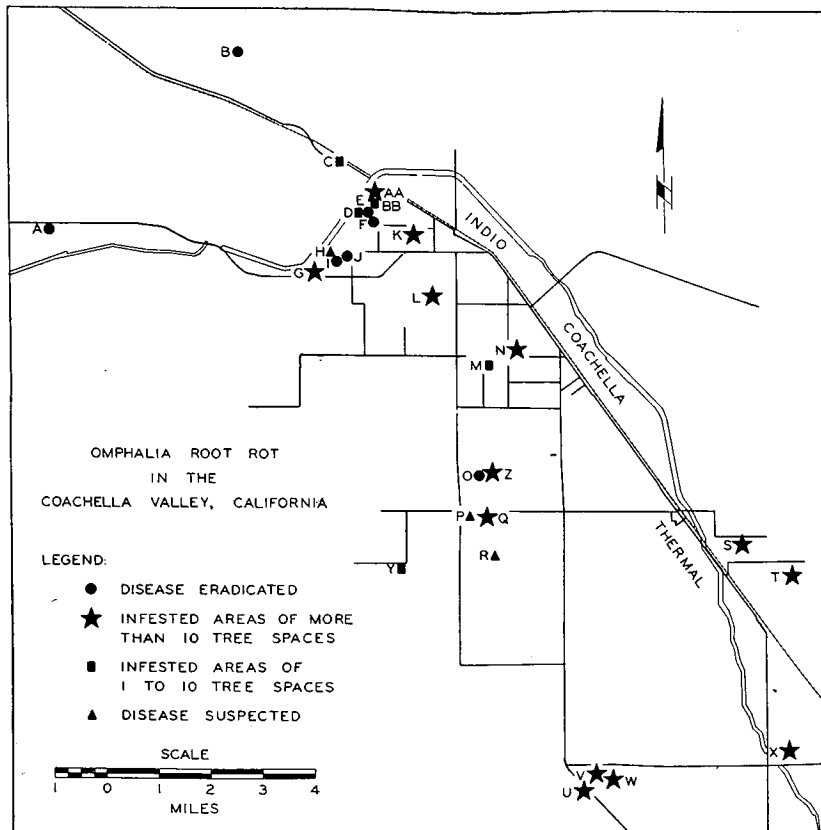


Fig. 1.—A map showing the location of omphalia root rot areas in the Coachella Valley of California.

gion extending from the Indian Wells District nearly to Mecca (fig. 1).\*\* Within this region omphalia root rot has been definitely identified in 25 date orchards, and infestations of omphalia in 3 other orchards are suspected.

I have classified these orchards in four groups as follows:

Group 1. Orchards where complete eradication of omphalia has been attempted by means of soil fumigation with carbon bisulfide.

Group 2. Orchards with infested areas of more than 10 tree spaces, where soil fumigation has not been attempted.

Group 3. Orchards with infested areas of 1 to 10 tree spaces.

Group 4. Orchards from which the diseased palms were removed before adequate examination of the roots had been made.

The first group includes 7 properties (fig. 1, A, B, E, F, I, J, and O) which are now presumably free from the disease. Omphalia in these infested areas of 1 to 6 tree spaces each, was diagnosed and eradicated

\*\*There is a small infested area in a date garden near Garnet and also in a planting near Riverside.

before serious damage had been done.

The second group (fig. 1, G, K, L, N, O, S, T, U, V, W, X, Z, and AA) presents a serious problem, not only to the growers, but to the entire date industry in the Coachella Valley. Here are the infested areas of long standing, from which much infested propagating material was inadvertently taken before the nature of omphalia root rot had been discovered. At least three generations of date palms have developed by means of offshoots since 1921, when the trouble was first recognized. The total acreage of Deglet Noor palms in the Coachella Valley has increased ten times during that period. Although offshoots were probably not taken from palms showing the secondary symptoms of omphalia root rot, other offshoots from infected but healthy-appearing palms at the margins of infested areas were probably cut for propagation.

All the 5 orchards in group 3 (fig. 1. C, D, M, Y, and BB) could easily be fumigated against omphalia. The infested areas in this group are relatively small and in a more or less static condition. Prior

to 1934 the infested area in garden C contained 21 palms. All these were removed and 15 of the tree spaces were fumigated with carbon bisulfide. Omphalia has since been found in one replanted palm situated in nonfumigated soil.

The 3 orchards in group 4 (fig. 1, H, P, and R) are suspected of having areas of infested soil, although Omphalia spp. were never isolated from the diseased palms which formerly stood in those places. If susceptible palms are replanted in these areas, it is possible that they will become infected.

#### DISCUSSION AND RECOMMENDATIONS

In the early days of the local date industry, the supply of date offshoots was small and the demand great; high prices were commonly paid, and there was a tendency to utilize every offshoot. It seems that this situation was responsible, in part, for the rapid spread of omphalia root rot from one garden to another.

In recent years, however, the planting of infected offshoots has, no doubt, been reduced by the complete reversal of the above-mentioned factors: the supply of available offshoots has been relatively large as compared with the demand, and low prices have been paid even for the best quality of nursery-rooted offshoots. Knowledge of the nature and control of omphalia root rot has been another factor in limiting the propagation of infected offshoots.

No one can predict what effect omphalia root rot will have on the date industry of the future. Can we, however, afford to ignore the experience of the past twenty years? Is there not enough public sentiment to limit further spread of this disease?

It seems to me that the opportunity for complete eradication of omphalia from the Coachella Valley has already passed. If we cannot completely eradicate omphalia, we must learn to get along with it by limiting its spread as much as possible. So far as we know, soil in the Coachella Valley is free from omphalia except in areas where it has been introduced on infected date offshoots. In planting a new garden, it is therefore important to know the history of the land. Replanting with dates after dates should be avoided

except where the former plantings have been free from infection. Re-planting with dates after soil fumigation with carbon bisulfide is, of course, permissible.

The selection of noninfected planting stock is of equal importance. Great care should be exercised in obtaining offshoots, not only from healthy-appearing palms but also from palms that are separated at least 10 tree rows from visibly affected palms. It is well to determine the origin of the parent palms and the condition of the orchard from which they originated. It would be unfair to conclude that, because of an infested area in a certain date garden, all offshoots from that garden are infected.

If offshoots are to be propagated from infested gardens, each offshoot should be labeled with the location of its mother palm. All offshoots within 10 tree rows from

the closest infested area should be avoided.

A detached offshoot without recorded pedigree is to be considered with suspicion regarding omphalia root rot. Prospective buyers should be allowed to select their planting stock while the offshoots are still attached to the parent palms. The certification of cut offshoots and of those in nursery rows cannot be attempted if there is no exact record of parentage.

Recent studies have indicated that offshoots of disease-tolerant varieties (such as Khadrawy) may also be carriers of omphalia. A carrier in this sense is a plant that carries on its roots, and disseminates, the mycelium of *Omphalia* spp., although the plant itself is not noticeably affected.

Thus far, the investigation of omphalia root rot in the Coachella

Valley has not included a systematic disease survey of all date orchards. No doubt there are some infested areas that have not come to my attention. I believe that a survey, followed by adequate laboratory work, should be contemplated. The movement of date offshoots should be recorded for future reference. Furthermore, I suggest that palms which are known to have originated from infested gardens be held under suspicion for a period of at least six years after planting.

Full information regarding the location of infested areas is in the hands of Mr. W. H. Wright, Agricultural Commissioner of Riverside County, and of Mr. Harry G. Bloom, District Agricultural Inspector, Coachella, California. I am cooperating with these men in supplying new information as it becomes available.

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## A REPORT ON THE PRESENT DAY MARKETING PROBLEMS OF UNITED DATE GROWERS

By Eugene C. Jarvis, Manager, United Date Growers of California

United Date Growers of California is a cooperative non-profit marketing association of date growers. It is a member of the National Council of Farmer Cooperatives, Washington, D. C., whose membership consists of farmer cooperatives from almost every state in the Union, and it is one of the 10,550 active cooperatives in this country. Each member of United is one of the 3,500,000 farmers represented by these active cooperatives. Farmer cooperatives have grown rapidly the last few years and now comprise a powerful group that takes its place side by side with the National Grange and American Farm Bureau Federation.

United Date Growers was organized April 13, 1937, to increase grower returns, as they were below the costs of production, and to eliminate the carry-over from one crop year to the next. Each year since, United has grown stronger, and today has accomplished the things it set out to do.

Sales were handled at first through a sales agent, with very little progress being made until 1939. The matter of policy and program until then was left entirely to this sales agent. Realizing that not much headway was being made, United

in 1939 sent its own direct representative out in the field to make a study and survey of the markets. It soon found that distribution was not being increased and many excellent potential customers were not selling California dates. The policy was, as production increased, to sell more dates to the same customers by reducing the price.

Consequently, United had to place market promotion and development work under its own direction. This controlling of policy and program by the growers did not meet the approval of the sales agent, and they entered the field as cash buyers one year ago, hoping to make more profit and leaving United Date Growers to sell its tonnage by itself. Although the task of building a sales organization to distribute the crop nationally with only three months notice seemed an enormous task, it was accomplished. The results were quite astonishing and proved the old saying that THE CALIFORNIA DATE INDUSTRY ITSELF IS THE ONLY ONE WHO CAN MERCHANDISE THE CALIFORNIA DATE CROP was true. This statement was made at previous date Institutes, and it does not mean the employment of

outside agencies on behalf of a growers' organization or the transfer of a grower's obligation to the Industry by selling his production to a cash buyer or distributor.

By having our own sales organization, we were not only able to reduce last year's expenses by 5% but found that a better relationship existed with the trade and that our distribution almost doubled. Without question, customers prefer to do business direct with a growers' cooperative, and not through a third party.

UNITED DATE GROWERS OF CALIFORNIA IS SOLELY RESPONSIBLE FOR THE PRESENT HIGH PRICES FOR DATES, DESPITE THE FACT THAT WE HAVE A SPIRAL MARKET, AN INCREASING DEMAND FOR ALL COMMODITIES, AND A GREATLY INCREASED BUYING POWER. There are two reasons:

**First:** PRICES WERE SET BY UNITED INSTEAD OF BY CASH BUYERS. An article was published in the July 23rd issue of the Indio Date Palm wherein it was stated that Los Angeles date buyers were then in the field, offering as much as 8c and 9c per pound for orchard run dates. At this same time the

Board of Directors of United Date Growers and several of its members were debating whether or not to open wholesale prices between 19 and 22c per pound for Standard and Choice grades, or to wait until later in the season, in hopes of setting them higher. These prices would return the grower approximately 3 to 4c per pound more than cash buyers were then offering.

The final outcome was that opening prices were delayed until September 17th when they were set at 22c per pound for the Standard Grade and 23c per pound for the Choice Grade, f.o.b. Wholesale. It was known that these prices would not be accepted by some markets, as it was a very substantial raise in price over the previous year. Los Angeles, Pittsburgh, and a few other markets did not accept them, and it was not until several weeks later, when they discovered that United Growers was in position to sell the entire crop in other markets without any reduction in price, that they finally started purchasing.

The point is that United Date Growers was in direct contact with the trade and knew each market intimately. Perhaps independent operators knew that date prices would be higher and that the grower should obtain more than they were offering him, but if they did, they were keeping it to themselves, as they could then take advantage of the strong market and increase their own profits at the expense of the grower.

If a large enough per cent of the date crop had been sold to independent buyers at the 8 or 9c figure, which was as high as was offered until almost the time opening prices were announced by growers cooperatives, it would have been impossible to have obtained present returns. As it was, such a small per cent had been contracted for at those low prices, that those so purchasing them were forced to raise their prices to the grower from whom they purchased, and finally paid between 4 and 5c per pound higher.

**Second: UNITED ELIMINATED PRICE CEILINGS AND GOVERNMENT RESTRICTIONS FROM FRESH CALIFORNIA DATES FOR THE 1942-43 SEASON.** On July 20th we were notified that OPA had declared California dates as dried fruit and placed them under the price ceiling as of March, 1942, at

all levels including producer, wholesaler and retailer.

**We had a representative in Washington on July 27th**, properly backed by sufficient information, so that one month later, all California Dates except by-products, were declared Fresh Fruit and therefore not subject to any price regulations. A ceiling of 15c per pound was obtained for Macerated Dates instead of the 6c ceiling that OPA had previously established.

None of this could have been accomplished if the Date growers had not had a representative in Washington. OPA is not averse to allowing growing costs to producers, but it has no intention of allowing handlers or distributors to make excessive profits at the expense of the consumer. Only a non-profit cooperative controlling sufficient tonnage to stabilize the industry could have accomplished these things. Three trips to Washington were necessary and three months of solid work was required. This saved the entire Date industry almost one million dollars, as grower returns would have otherwise been set at the 1941 level of approximately 6c per pound orchard run. Such a low price of course, would have been disastrous, as it would not have paid for the cost of production, and date growers would have been forced to abandon their gardens.

The ruling that California Dates are fresh fruit does not assure permanent freedom from price ceilings, and OPA still has the power to set any ceiling it desires within 24 hours. This is the safeguard it had to prevent abuse of the privilege given the date growers.

These are two reasons United Date Growers is solely responsible for present grower returns. Failure on the part of United in accomplishing these two necessary things, would in one case have limited the grower to 2 or 3c per pound above last year's price and in the other case, prevented him from receiving even one cent more.

There are other marketing problems. It is necessary to divert the sub-standard grade into by-products. The need for eliminating sub-standard dates from directly competing with the better grades in whole form was recognized in 1936, at which time Coachella Valley Date Growers, Inc., was organized to cooperatively handle the sale of sub-standard dates as by-products, and a Government

subsidy was obtained. In 1938 a Date Marketing Order was established, forbidding the sale of the sub-standard dates except in by-product form. If it was necessary to convert the low grade of dates into by-product form in 1936 and 1938, it is just as important to convert them in 1942, and probably will be more important to convert them later on, when the present economic situation changes, at which time this country will be faced with cheap importations of all commodities.

There are two reasons that the Date Marketing Order must still be continued:

1. California Dates must be established as quality merchandise.
2. A market for by-products must be developed.

The present Date Marketing Order has been violated this past season and consumers buying sub-standard dates in whole form have repeatedly made this remark "I wish there were imported dates on the market, they are of better quality and are cheaper." This simply means that we are building a barrier against our product in the minds of the consumers.

It has taken many years of hard work to develop a sound market for date by-products. We must not lose these markets, and must take advantage of the present economic situation to develop them more fully.

Consequently, it is imperative that the present Date Marketing Order be amended in such a way that it can be enforced. This can be done, and will meet the approval of the majority of growers, even though it will not meet the approval of some of the handlers (cash buyers). This is a producers' problem only and affects producers only.

We are pleased with the reputation United Date Growers enjoys. Our files are filled with letters commending us on the way we have handled our operations this last year under perhaps the most adverse difficulties which have been heretofore experienced. Some letters are from customers who discontinued marketing California Dates several years ago, due to the lack of grower organization and unsound and unethical practices.

It is important that growers control their own brand name. This point cannot be argued. Many

businesses have spent fortunes in advertising and developing brand names, who now are unable to sell their products, due to war restrictions. Consequently, they are spending money by advertising, just to keep their particular brand name in the public mind. The Date Industry is still able to sell its product without any restrictions, and is able to develop through cooperative effort, a name and brand which will always belong to the growers, and at practically no cost. This is the reason imported date packers are attempting to gain control of the distribution of California Dates. They must keep their brand name alive.

There have been many arguments

regarding the necessity of competition in selling. It can have only one result, and that is a lower price to the consumer, resulting in a lower return to the grower. It seems strange to hear growers arguing the necessity of competition in the Date Industry. We must eliminate all competition within the Industry by uniting together to collectively compete with other commodities in developing new markets and in holding those we now have.

Several years ago, at the time we California Date Growers were not cooperating, the imported date group organized and stabilized their business by restricting the quantities of imported dates that could be brought into this country, and allo-

cated such tonnage fairly among them. Prices were stabilized, handling methods improved, which not only stabilized the market and allowed them all to obtain a nice profit, but put them in an excellent position to compete with California Dates in the better markets. **Every date grower should give this serious thought.**

Only one conclusion can be drawn after reviewing that which has taken place this past season. The Date Industry must be controlled by producers and they should not delegate their obligations or responsibilities to any person or organization handling dates as a side line, whether it be to reduce overhead or make a profit.

## FLOWER AND FRUIT PRODUCTION OF THE DATE PALM IN RELATION TO THE RETENTION OF OLDER LEAVES

By Roy W. Nixon, U. S. Date Garden, Indio, California

Evidence has been accumulating for a number of years that the bearing capacity of a date palm is in proportion to the number of green leaves that it carries. In spite of this, a large number of green leaves are cut off every year by date growers. Although practices vary, probably a majority of Deglet Noor growers at present cut off a sufficient number of old leaves to clear the tops of the fruit branches. A few growers retain some leaves between the bunches, but it is very seldom that any green leaves are retained below the bunches. Although the fundamentals of plant physiology would lead one to expect that every green leaf is an asset to the palm, there has been some question as to the relative efficiency of the older leaves and uncertainty as to whether the retention of old leaves is a definite benefit in terms of flower and fruit production.

In 1941 two experiments were begun in cooperation with Deglet Noor growers—Mr. H. L. Cavanagh in the Indian Wells district and Mr. Kenneth Peck near the Coachella Valley Union High School. In each garden a block of 20 palms were selected for the tests; every other palm was pruned to clear the bunches in June and on the remaining palms all leaves were retained as much as possible. The plan is not to remove unnecessarily any leaves from the unpruned palm until all the leaflets

are dead. In each case the grower determined the number of bunches to be left. Fruit thinning, irrigation, and other cultural treatments were the same as for other palms in the same block. The only leaf pruning in 1942 was in August when it was found necessary to remove about 9 leaves per palm in all treatments to permit proper bagging of bunches. In 1941 the unpruned palms had leaves down between the bunches but very few below. In 1942 there were leaves below all bunches on the unpruned palms. The results of the experiment to date are given in the accompanying table.

Yield records are not given for 1941 because of the heavy loss (approximately 50%) from rain damage that season. In 1942 in the Peck garden there were 2.9 more flower clusters per palm on the un-

pruned palms and an increase of 24.2 pounds of fruit per palm; in the Cavanagh garden there were 3.6 more flower clusters per palm on the unpruned palms and increase of 28.6 pounds of fruit per palm. This increase in flower and fruit production for unpruned palms in 1942 was undoubtedly the result of the higher leaf-bunch ratio in 1941 resulting from the retention of the older leaves.

The percentage of fruit that graded choice or better was slightly higher for the pruned palms in both gardens. In the Cavanagh garden there was also a slightly higher percentage of dry fruit for the unpruned palms. Statistically these differences are of questionable importance. With a difference of only 1c a pound between the price of the standard and choice grades the very

### DATA FROM LEAF PRUNING EXPERIMENT, 1941-42

TREATMENT	Unpruned	Pruned	Unpruned	Pruned
	(Peck's)		(Cavanagh's)	
	Average per palm			
<b>1941</b>				
Number of leaves .....	118.6	78.5	116.3	84.4
Number of bunches .....	12.4	12.6	12.8	12.3
Leaf-bunch ratio .....	9.6	6.2	9.1	6.9
<b>1942</b>				
Number of leaves .....	142.7	105.7	138.8	107.6
Number of inflorescences .....	16.6	13.7	14.5	10.9
Number of bunches .....	12.9	11.0	11.2	8.4
Leaf-bunch ratio .....	11.1	10.0	12.6	13.2
Yield, pounds .....	240.7	216.5	231.6	203.0
Fruit choice or better, pounds .....	93.9	97.4	37.5	45.7
Fruit choice or better, percent .....	39.0	45.0	16.2	22.5
Fruit dry, pounds .....	31.8	30.3	92.2	70.6
Fruit dry, percent .....	13.2	14.0	39.8	34.8



marked difference in yield made the unpruned treatments definitely the most profitable in 1942.

However, there may be some relation to soil type and irrigation practice. In both gardens heavy applications of water are the rule, but in the Cavanagh garden the soil is somewhat lighter and less retentive of moisture. It is possible that in

a still lighter soil or with inadequate irrigation some palms in a year like 1942 might not be able to carry such an additional crop of leaves and fruit without an excessively high percentage of fruit in the dry grades. Delayed picking is believed to have resulted in a larger percentage of dry fruit in

the Cavanagh garden than in the Peck garden.

It is proposed to continue the experiments to study the accumulative effects of the treatments. The results thus far indicate that where soil and cultural conditions are most favorable for palm growth, flower and fruit production are increased by the retention of old leaves.

## ANNUAL REPORT TO THE INDUSTRY SUB-STANDARD DATE POOL

By Robbins Russel, President Coachella Valley  
Date Growers Association

War emergency regulations have been in effect throughout the harvest and sale of the 1942 crop. Sub-standard dates and date products are under Maximum Price Regulation 243 Parts 1351.901 to .913 inclusive. The impact of these regulations on our operations was materially cushioned, due to the work of the industry's representative at Washington—J. Wallace Stevenson. We also profited because of the small size of our industry and its favorable record of past cooperation with the Department of Agriculture.

Operations of the Sub-Standard Pool also had to be adjusted because of the stoppage of Federal diversion payments, which have been an integral part of the program for the crop years 1936 through 1941. This occasioned rather drastic revision of your association's operations, inasmuch as funds for grower advances had to be found to replace those formerly supplied by the Government payments.

Notwithstanding these and the many lesser dislocations resulting from the war, it is a pleasure to present on this page the summary of the 1942 sub-standard pool operations.

Comparative costs and returns tell their own story. Therefore the table on the following page for the crop years 1938 through 1942 illustrates the Association's progress.

As President of your organization I am glad to have this opportunity to commend the able work of the office and field personnel—Mrs. Gertrude Mullan, Assistant Secretary, Office Manager and Auditor, and Mr. Clark Hastie, Inspector. The generous amount of time and energy donated by Mr. Leonhardt Swingle

### COACHELLA VALLEY DATE GROWERS ASSOCIATION 1942 CROP OPERATION - COMPLETE SEPTEMBER 1, 1942, TO JUNE 10, 1943 2,838,640 POUNDS

<b>INCOME</b>	
Sale of Dates .....	\$359,664.67
Sale of Lugs .....	2,204.86
Sale of Pits .....	2,104.73
Sale of 1942 Inventory to 1943 Season .....	18,719.12
Miscellaneous Income .....	594.67
Total Income - - - - -	\$383,288.05 - \$.13502 lb.
<b>EXPENSE</b>	
<b>Processing and Storage</b>	
Mascerating .....	\$23,225.82
Lugs .....	6,657.91
Storage & Warehousing ....	3,982.57
Hauling and Weighing .....	4,811.01
Labor, Loading & Marking .....	948.57
39,625.88 - \$.01396 lb.	
<b>Selling</b>	
Commissions .....	909.96
USDA Inspection & Freight .....	86.89
996.85 - \$.00035 lb.	
<b>Administration</b>	
Office Salaries .....	2,256.18
Inspection Salaries .....	2,400.00
Inspection Expense .....	1,215.57
Govt. Regulation Expense .....	1,419.33
Legal Expense .....	411.00
Taxes - Payroll .....	154.07
Taxes - Others .....	177.12
Office Supplies, Heat & Light & Postage .....	332.28
Telephone & Telegraph ....	211.36
Insurance and Bond .....	201.72
Interest .....	144.33
Depreciation .....	132.69
Office Rent .....	120.00
Audit .....	90.00
All Other .....	153.92
9,419.57 - \$.00331 lb.	
Total Expense - - - - -	50,042.30 - \$.01762 lb.
<b>Excess of Income Over Expenses</b> - - - - -	333,245.75 - \$.11740 lb.
<b>Deduct: Retain to Revolving Fund</b> - - - - -	2,838.64 - \$.00100 lb.
<b>Net Income</b> - - - - -	330,407.11 - \$.11640 lb.
<b>Deduct: Paid to Members to June 10, 1943</b> - - - - -	267,580.80 - \$.09500 lb.
<b>Balance Due Growers, June 10, 1943</b> - - - - -	\$62,826.31 - \$.02140 lb.

to the administration of the business and as Secretary likewise is gratefully acknowledged.

For yet another year the total cost to the grower-members of your Board of Directors has been exactly nothing.

The above seems to indicate all is well with our industry. And so it is, provided:

1. Growers do not forget—as was so well summarized by Hugh Proctor (see 16th and 18th Annual Date Growers Institute proceedings)—the history of the long, hard struggle to set up the sub-standard polls, work

the interference of the Japanazis—the same date palms which before the war were producing in Iraq, Iran, Algeria, the Sudan and elsewhere, still are bearing crops and will have plenty of fruit in the USA as soon as shipping space is obtainable. Any producer who does not keep this continually in mind is as short sighted as a military leader who relaxes vigilance while in enemy country.

If we continue to unify and strengthen the handling of the sub-standard, we should be able to weather that storm in fair financial

forced, growers have shown they cannot maintain grades on a voluntary basis. The result will be, as history has shown, dilution of grades, customer dissatisfaction, a spiral of downward prices, with grower ruin at the end.

Anyone conversant with the history of our industry can vouch for the correctness of those statements. I restate them because the “easy money” of our present war economy tends to blind the best of us. Now that buyers need supplies to operate on, all growers are under substantial pressure to “sell direct.”

Crop Pool of Pounds whole sub-standard dates received .....	1938	1939	1940	1941	1942
1,800,600	1,653,570	2,962,980	1,618,680	2,838,640	
<b>Sale Price, f.o.b. Valley, per pound, whole date basis \$</b>		\$ .04864	\$ .05606	\$ .07600	\$ .13502
<b>Plus Government Subsidy paid growers .....</b>		.03000	.02552	.02250	(None)
		.07864	.08158	.09850	.13502
		.07697			
<b>Expenses, per pound</b>					
Administrative .... \$	.00317	\$ .00326	\$ .00289	\$ .00566	\$ .00331
Process & Storage .02030		.01827	.01552	.01071	.01396
Selling and Transportation.. (in above)		.00711	.00579	.00778	.00035
<b>Total Expenses .....</b>	<b>.02347</b>	<b>.02864</b>	<b>.02420</b>	<b>.02415</b>	<b>.01762</b>
<b>Balance, over expenses .....</b>	<b>\$ .05350</b>	<b>\$ .05000</b>	<b>\$ .05738</b>	<b>\$ .07435</b>	<b>\$ .11740</b>
<b>Revolving Fund Retain .....</b>	<b>\$ .00126</b>	<b>(None)</b>	<b>(None)</b>	<b>\$ .00200</b>	<b>\$ .00100</b>
<b>Paid Growers, per lb. (whole date basis) .....</b>	<b>\$ .05224</b>	<b>\$ .05000</b>	<b>\$ .05738</b>	<b>\$ .07235</b>	<b>\$ .11640</b>

out the methods of handling through CVDG and arrange for financing, as the result of which a standard product (the California Seeded Date) has been developed, the sale of which is a definite asset to the producer. Only the centralization of the handling of this “dynamite” part of our date crop through one grower-controlled association, with its record of close cooperation with the Federal Government, has produced this favorable result.

Irrespective of present “skyrocketing demand”—which is, of course, merely a temporary flurry thanks to

shape. If not, if the producers once again “fall for” the idea that sub-standard dates can be individually handled, I predict that history will repeat itself and we shall once more see dates selling below 5c per pound. This, of course, means literal ruin to most growers.

2. Growers also do not forget that effective administration of date standardization under the California Date Marketing Order, is the cornerstone to the successful handling of our crop. Unless the grades established by the Order are commercially sound and then rigidly en-

I say to \*all growers “Beware if you do.” Every such deal, which formerly was handled through your own organization, is another rung down the ladder leading back to the maelstrom conditions of the early 1930's. And few of we present growers will be strong enough swimmers to survive another such buffeting. If you do not like all the features of your organization (and who does in any industry), reform it from within—do not “pull out,” for that is to injure not only you, but also your industry, from every long-range viewpoint.

# WAR PROBLEMS FACING THE DATE INDUSTRY

By Wm. W. Cook, Manager California Date Growers Association

The title of this paper is somewhat restricted, as many of the matters to be discussed are basic industry problems that will be with us long after the war is won. The reason for discussing them under the above title is that war conditions have increased their seriousness and made it vital that attention be given them by every producer of dates. The problems to be discussed relate specifically to:

1. Labor.
2. Supplies.
3. Transportation.
4. Governmental Regulations.

It is of little value to enumerate problems in the absence of a suggested solution, there is, therefore, the further purpose of suggesting ways and means whereby the impact of wartime amplification of these problems may be cushioned by actions of date producers.

**1. Labor:** The shortage of labor is self-evident. The inefficiency of much of the available labor is also self-evident. It has been stated that we have half the labor we require, the labor we have does half a day's work, so the date producer has only 25% of his work done. This is said facetiously but is more truth than joke.

The problem then is:

a. To develop short cuts and eliminate all unnecessary operation.

b. To simplify operations thus enabling less skilled persons to function properly.

c. To develop a training system for breaking in new help in the shortest possible time.

d. To develop labor management practices that will maintain friendly relations and not only keep men on the job but make them want to do their job.

These objectives apply both to packers and to producers. No one will be entirely successful, but by sharing ideas it should be possible to accomplish much.

Over and above this is the general problem of making the most effective use of the total labor supply. This requires cooperation, not only among date growers and packers, but among all agricultural interests in this area. It means preparing for peak labor shortages long before they develop; it means coop-

erating with schools and Federal, State and County agencies; it means having courage to invest time and money in advance preparation; it means breaking away from what has been done in the past or what was done by someone else; it means progressive, realistic planning and action.

**2. Supplies.** By this is meant all types of material purchased by producers and packers. On this score the packing house operator is often in a more advantageous position than is the grower. The individual grower does have the assistance of the U.S.D.A. County War Board, but as a whole is in a less favorable position as to War Production Board priorities and limitation orders.

The best answer to this problem is pooling that which we have, assisting one another wherever possible, and above all, working together to secure proper recognition of the value of dates as an essential food. It is suggested that greater thought be given to eliminating waste of material. As an example, it may be economically unsound to save pollinating twine to use in tying date covers, but if no more twine is available it may be imperative to do just that.

**3. Transportation.** This is more serious than just the inconvenience of gas rationing. The Office of Defense Transportation may appear to be another annoyance, but it was set up for a serious purpose. Trucks are even now going off the road for lack of repair parts. Trucks and tires are wearing out and the supply of replacements is very small. Railroad capacity is becoming increasingly overtaxed from day to day. The date producer's must work together on this problem. Each individual should stretch his facilities to the utmost. Neighbors may be able to effect combined loads for delivery to a packing house. Every effort must be made to keep our trucks operating. We should also develop a united front in dealing with Franchised Carriers, both truck and rail, and with the government agencies having power to prescribe and limit our use of available transportation facilities.

**4. Governmental Regulations:** This subject consists of two parts. (a) Application of existing regulations to the individual's business and requirements and (b) Efforts to acquaint Governmental agencies and legislative bodies with the problems of the date industry and thus secure inclusion of proper and sound regulations which will be beneficial rather than harmful.

a. Information on and proper interpretation of War Production Board, Office of Price Administration, and Office of Defense Transportation orders is essential. The date producers should demand proper representation on the U. S. Department of Agriculture War Board and should maintain contact with all sources of information on these subjects. It is the desire of the Federal Government that food production be increased—it is the duty of the date producer to assist in this program by doing all he can to increase or maintain his own production. An inescapable part of this is the necessity of each grower making an effort to adapt existing regulations to his personal situation. This statement is made despite the knowledge that many of these regulations are impractical and many are so complicated as utterly to bewilder the man who is supposed to use them. None the less, these rules exist, and until we are able to change them we have no alternative but to comply as best we can.

(b). Many new regulations will be issued before the war is ended, new agencies will no doubt be established, new faces will from time to time displace those now responsible for regulation of business. After the war, there will be a period of world reconstruction of unknown length. It can be assumed that many of these regulations will continue in force for this period. It is therefore vital that the Date Industry be represented when rules under which it must operate are drawn. Effective representations can be accomplished only by organized, united action. The word "cooperation" has been used repeatedly in this paper. This is not intended to refer only to cooperative packing and marketing. As valu-

able as this is to the producer, it alone is not adequate. The industry must unite as to a general policy—then work as a unit to reach the desired end. **The ill-advised action of one individual** can destroy the fruits of months of work by the balance of the industry. Harsh regulation of each detail of date production and marketing may be expected unless Governmental agencies have confidence in the date industry and in the integrity of date producers and packers. Government must be assured of industry acceptance of, and compliance with, promises made in behalf of the industry; and be able to judge by past performance that these promises will be fulfilled. A very few people may so easily disrupt the position of the industry that it behooves every grower, every packer and

every marketer to maintain contact with the general program and to consider his every act in the light of its possible effect on the position of the industry as a whole. The man who maliciously attempts to sabotage the industry is often too obvious to become as serious a menace as the one who takes harmful action through thoughtlessness or ignorance of the facts. He who handles his affairs in a manner contrary to a program adopted by the industry even though with the best of intentions, jeopardizes not only his own future, but the future of every other operator. Unity of purpose, unity of action and unity of method are the basic essentials upon which this industry may progress.

On such a basis this growing industry can establish its importance

as a producer of food, which is not difficult in view of the tremendous food value produced from one acre, and the small amount of labor required per callory produced. On this basis it can build and maintain a cooperative relationship with regulating bodies. It can become one of the outstanding agricultural enterprises of the United States despite its small acreage. The opportunity is there—the only question is, will the producers of dates and the packers of dates take full advantage of this opportunity; or, will they lose this chance through selfish, short-sighted strife among themselves? Time will tell us the answer to this question. The actions of those who constitute the date industry will determine what that answer is to be.

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## PRELIMINARY REMARKS

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By Wm. W. Cook, President United Date Growers of California and  
California Date Growers Association

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As a perlude to a discussion of present industry problems I wish to turn back to previous Date Institute proceedings and quote briefly from papers presented in past years. I may say, in passing, that any grower can derive much of value from re-reading these Institute Reports. You will be surprised at how closely the problems of today consist of the projections of the problems of ten or twenty years ago. First, I wish to read a quotation from the First Annual Date Institute. These words were spoken by my father, C. E. Cook, in 1924.

"Whether the marketing is conducted by organized co-operative associations or by private individuals, co-operation of some sort is of the highest importance and will ultimately be absolutely essential for complete success. This thought is by no means new and fortunately we have the extended experience of several well organized industries from which we can profit. It was sometimes dire necessity that brought the individuals together into a strong organization but no matter whether it was the cords of love or the fear of bankruptcy that bound them together they demonstrated what co-operative marketing could accomplish."

\* \* \*

"It would be difficult to find another line of business where a

market has been developed with as little advertising expense as the date industry and it is almost a certainty that a large percent of advertising costs and high commissions can be avoided if we continue to avoid competition and keep the quality of our product high."

Then I turn to a paper by E. H. Hayes, read at the 5th Institute in 1928. If you have a copy of the Report of the Fifth Institute I suggest you read the full text of Mr. Hayes paper. The following appears worthy of particular consideration:

"You have come manfully to the conclusion that all the petty jealousies and acrimonious bickerings that have transpired in years gone by, emanated from ignorance; and ignorance is simply another form of 'death by slow torture.'

"And, finally, you have realized that production of marketable dates is increasing so rapidly that we shall soon be overwhelmed by mounting costs and destructive sales competition unless some fair method can be found that will permit one and all to obtain a legitimate and fair return on his labor and capital invested.

"Our problem is not a new one. We are passing through a period of economic evolution in the date industry, that has confronted every other worth-while industry, and now we are coming to the

'parting of the highways' and must make a decision. Which path are we going to follow—that marked 'Wasteful Competition to Ruin' or 'Wise Co-operation to Success'? Shall we try to emulate the orange and walnut growers of California, or are we just going to worry along, like any other bunch of farmers, and slowly die of dry rot?

"Don't think for one instant that all our troubles will be over if we decide that a Co-operative Association is wise. I assure you that our troubles will have just begun—economic ones of vast import to the whole industry—and it is at this point, above all others, that I adjure you to stand fast, co-operate, practice 'Charity'.

\* \* \*

"Don't for one moment think that we shall ever be able to make a strong plea for pest control, or for protective legislation, from either federal or state government until we do get together in an organization that will represent at least 80% or 90% of the date industry of this country. We have come to the point where we must stand on our own two feet, and co-operate among ourselves in growing, processing, and marketing dates, if we ever desire to have co-operation from federal and state governments."

Skipping through subsequent reports my eye was caught by the following paragraph from a paper of 1937 on the Substandard Diverison Program by Hugh W. Proctor

who was manager of the Coachella Valley Date Growers

"Generally speaking, it has been the practice of date growers to sell this substandard grade fruit during the harvesting season to any date buyer that could be found, without any restrictions as to its use. The result of this practice was that nearly all of this low grade fruit was hydrated and sold directly in competition with the better grades of dates, and most often was used as competitive ammunition by the dealers who cared little or nothing for the future welfare of the date industry. The direct result of this manner of marketing the substandard dates has been to lower the general price level of all California dates, and to create in the minds of the buying public a rather low opinion of California dates.

And again in 1939 in the 16th Institute Mr. Proctor said:

"Prior to the inception of the first diversion program in 1936, the date industry was in a demoralized condition. The only cooperative association of date growers then in existence handled less than 50 percent of the crop grown in Coachella Valley. The balance of the crop was sold wherever possible by individual date growers. The result of this indiscriminate manner of marketing brought in all kinds of dealers who were looking for a cheap product to market, and who took every advantage possible of this disorganized condition without any regard as to the cost of production of dates or the welfare of the growers themselves.

"The diversion programs of 1936-37 and 1937-38 brought about a great improvement in this situation because during those two seasons most of the substandard dates were brought into the pool established by the Coachella Valley Date Growers, Inc., and kept out of the regular channels of trade so that they could no longer be used as competitive material by unscrupulous dealers. In addition to this benefit, the growers, who had been brought together in Coachella Valley Date Growers, Inc., learned the value of cooperation, formed a new association, the United Date Growers of California, to pack and market the standard grade dates.

"Although the marketing situation was benefited by the pro-

grams of 1936 and 1937, the greatest benefit was not realized until this past season of 1938-39 when a state marketing agreement was put into effect, making it illegal to market substandard dates as whole dates, thus removing 100 percent of substandard dates produced in California from competition with standard grade dates."

In the 15th Annual Institute (1938) the following pertinent remarks were published by the Sales Manager of Calavo, a California Avocado cooperative:

"From these factors therefore, we have only one conclusion: **The California date industry itself is the only one who can 'merchandise' the California date crop.** That means cooperation among the producers who comprise the California date industry. That means that at least 85% of the production of the California date industry should be in the hands of 'men who will cooperate,' one with another, in order that the most dollars can accrue to the California date growers. Too, it should be remembered at all times, that **men** cooperate and **not** the products that they raise. Now, let's sidetrack this theory of cooperation and cooperative marketing for a moment and consider some of the factors that should lead all growers into a cooperative marketing deal.

"First, we would say that it must necessarily remain unchallenged, that controlled production, controlled grading and controlled shipments to market, will control asking prices, whereas, if **every** producer attempts to market in **his own way and through individual channels**, there can be no control whatsoever and merchandise that would readily lend itself to cooperation is unnecessarily competing with itself to the end that the **only** result can be disastrous prices to the producers. While we said a little while ago that only men can cooperate and not products, we still must remember that certain products lend themselves for cooperation in greater degree than others and, among those products is the California date and we feel that this is due principally to the limitations of the producing areas."

From a paper by E. C. Jarvis, published in the 18th Institute proceedings I noted the following paragraph:

"The different grades have more or less been standardized over a period of years. However, in the past there was nothing to prevent each individual grower from chiseling on those recognized grades and selling lower grade fruit as top quality to unsuspecting customers. This, of course, did not help California dates. The biggest advance made in this line was the establishments of the date marketing order which prevented the substandard grade of dates being marketed in whole form. Also, the standardization of the commercial grades was greatly improved when the growers formed their own marketing organization, United Date Growers. Grade specifications were set up and all packing houses cooperated with the inspection staff so that more uniform and dependable grades were obtained."

In closing this summary of comment from past speakers I would like to read the last paragraph from a paper presented by myself last year:

"There are few who do not participate in this endeavor to make the date industry of greater value. We grumble at holding the umbrella for their benefit. Some members resent the participation in the benefits of our cooperative program of a minority who do not contribute toward the cost of market development and advertising. More serious is the disrupting influence on the orderly distribution and marketing of our dates by this minority grading or selling dates in a manner or at a price that does not conform to the general industry program. We hope they will see the value of united effort and join with us. If not, the benefits are so obvious to the rest of us that we propose to carry on and make the date industry continue a successful agricultural enterprise despite the attitude of a few who are unwilling or unable to comprehend the basic principles of cooperative action."

These are but a few of the many comments regarding the value of cooperative endeavor within our industry. As many of our war problems can be solved only by cooperative action, it is of interest to note how Institute papers in previous years have expressed themselves on this subject.

# DATE INSTITUTE DISCUSSION PANEL

## LABOR SHORT-CUTS

Leader: **H. B. Richardson, Assistant County Agent, Riverside County**

Problems of the date industry are not unlike those of many other California agricultural industries at this time. Labor is short. Materials are either scarce or unobtainable, and sometimes those available are poorer in quality than the old. Prices for all goods and services are rising fast, and in the case of farm labor, the old standards of efficiency are dropping. All this makes it necessary for the date grower to give closer study to his own problems and to use such short-cuts in production as will cut down labor and material requirements, yet still maintain satisfactory production and quality.

There are many operations going into the production of a date crop. In brief, these can be divided into cultural labor; that is, the labor necessary to produce that crop; picking and hauling, which takes as many man hours of labor as the production of the crop; and, the materials necessary to produce the crop, such as fertilizers, irrigation water, bags, cover crops, etc.; and, finally, the overhead costs, such as taxes, insurance, etc. Some of these costs the date grower can control; others he cannot.

During the years from 1932 to 1941, growers continually reduced their cultural and material costs until it seemed impossible to go much, if any, lower. In most cases, I believe quality was maintained and production continued at high levels in the better-located and managed gardens. The proper application of irrigation water to soils is important, and I have long had the conviction that most orchard operators, whether here on the desert, or on the coast, were not taking full advantage of methods of application; in other words, not paying enough attention to their own problem. There are many adaptations of standard irrigation practices in use. In watching the agriculture of this valley for a number of years, one cannot fail to realize the importance of properly applied irrigation water. Where little or no rainfall occurs, the leaching of harmful salts accumulating on and near the surface of the ground is important.

It is in this zone that tree roots are most numerous and the soil is usually more fertile, so leaching of this area of soil is important. To accomplish this, the spreading of irrigation water over the whole ground surface is the next best thing to rainfall and the only practical approach to the problem in desert areas of which the Coachella Valley is one.

**Mr. P. S. Shumway and Mr. E. L. Jarvis** have been using a contour flooding system of irrigating in their date gardens with apparent success to date. The system, once the soil has been properly leveled, can be installed rapidly; borders are thrown up between the date trees, not on the square or right angle, but following the contour of the land as determined by a level. Once these contours have been established, the headgate valve need only be opened to irrigate evenly the entire panel. According to **Mr. Shumway and Mr. Jarvis**, this system of irrigation has been found to be very satisfactory as far as their gardens are concerned.

The use of multiple board-base furrows has also proved satisfactory. The furrows are adapted to carry rather large heads of water and an even surface distribution of irrigating water is obtained. **Mr. Bert Cavanagh** reports he has found the broad, shallow furrows very satisfactory for his conditions. **Mr. Cavanagh** stated further that the use of a soil tube was very helpful in determining the soil moisture content throughout the root zone. By the use of the soil tube, definite moisture penetration and conditions can be determined. Water should run until a thorough wetting of the whole date palm root zone is accomplished. There are many systems of irrigation and many variations of these systems. The Extension Service has watched and helped with the development of some of these systems. We believe that any desert cropping system, to withstand the test of time in areas of little rainfall, must be based on a period of flooding of the top surface soils with consequent leaching of harmful

salts if the crops are to maintain their health.

Another question of importance to all date growers, and on which we have very little definite information, is the fertilizer requirement of the date palm. Tests are under way by the Federal and State institutions which should ultimately furnish information. Those growers using large quantities (10 to 15 tons per acre) of barnyard manures, and in some cases, simple nitrogen fertilizers such as nitrate of soda or sulfate of ammonia, have secured high yields and good quality of crop. Most desert soils are deficient in nitrogen, which can be supplied adequately from organic manures or inorganic high nitrogen materials. The question of phosphates is still open to debate, but organic manures contain large quantities of this material. The need for potash is even less as Coachella Valley soils are amply supplied with this element and organic manures carry large amounts. In all of my test plot work in Riverside County with different crops on different soils, I have yet to see a definite measurable response to potash. On the question of date fertilization, **Walter Reuther**, Horticulturalist of the U. S. Government Date Garden, contributed the following:

"It does not appear that the government war-time restrictions on the use of chemical nitrogen will have any material effect on the date industry. As many of you know, dates have been classed as a Group B crop under Food Production Order No. 5, and as such, may use chemical nitrogen based on use in either the 1940-41 or the 1941-42 season. That is to say, you will not be permitted to use more chemical nitrogen per acre than you have previously used on your date garden, as indicated by your own signed statement. There are certain questions of interpretation which have not yet been clarified. It will be wise to anticipate your needs well in advance, and to make application for your fertilizer needs early.

"So far, chemical nitrogen is the only restricted fertilizer nutrient. Fortunately for date growers, farm

manures are not restricted, and you will not have to sign anything but a check to make good use of them. Good quality steer manure from the Imperial Valley contains 20 to 30 per cent moisture, 5 to 10 per cent ash, 50 to 60 per cent organic matter and 1¼ to 2 percent nitrogen. When used at the rate of 10 tons per acre, it is equivalent to between 1250 and 2000 pounds per acre of sulfate of ammonia.

"Most potash and phosphorous materials have not yet been restricted, and probably will not be unless labor and transportation bottlenecks develop in these industries. Should they ever become unavailable, I believe it would be a matter of small concern to most date growers. The limited data we have available indicate that most date soils are at least not seriously deficient in these two elements. Substantial quantities of potash and phosphorous are contained in steer manure. It contains about 1 per cent of potassium and 0.25 per cent of phosphorus. When applied at the rate of 10 tons per acre, this is equivalent to 400 pounds per acre of sulfate of potash and 200 pounds of triple superphosphate.

"I believe that the reason why date growers have had such good success with steer manure is that it is fundamentally well adapted to the soils of this region, and to irrigation agriculture. The mineral nutrients contained in manure are tied up, for the most part, in insoluble, organic form. The organic materials must first be broken down by the action of soil bacteria and fungi before nitrates and other nutrients are released. This decomposition process is a gradual one extending over several months at least and the rate of nutrient release will depend on soil temperature, the amount of undecomposed manure left, the moisture content of the soil, and other factors. Thus, on light sandy soils, loss of applied nutrients due to leaching by downward percolation of applied irrigation water will not be very great. On heavier soils, the organic matter in manure will improve water penetration. Carbonic

acid is given off as a by-product of organic matter decomposition, and this will, temporarily at least, reduce the inherent alkalinity of calcareous soils, and possibly increase the availability of certain native mineral nutrients in the soil.

"The chief disadvantage of steer manure is the weed seed it contains. If the price continues to go up still higher, it will become a very expensive fertilizer. When it used delivered, it was a good buy on the to sell at between \$4 and \$5 a ton basis solely of the value of its NPK content."

To conclude this discussion on the use of fertilizers, growers should endeavor to utilize all sources of supply and to maintain their program as in previous years. As the palms increase in age, so should the amount of fertilizer applied be increased. You are fortunate in this area to have a not-too-far distant supply of high-grade dairy and steer manures in the Imperial Valley on which to rely.

Another important cultural practice is bunch management. Meetings in the field have been held covering most all essential points on bunch management. However, there appears to be something many growers might do which should cut down the number of trips necessary to complete bunch pollination. **Mr. Roy Nixon** of the U. S. Government Date Garden pointed out that by breaking the spaths open once they have completely emerged from the palm, more bunches can be pollinated at one time. This cuts down the number of trips, thereby reducing the amount of labor necessary at pollination time. **Mr. Nixon** estimated that growers could cut down 25 to 50% in pollination labor. **Mr. W. W. Cook** commented on this program as outlined by Mr. Nixon, stating that he has been following this practice for several years and as far as he could tell, it was a labor-saving device and to date had no ill effects on yields of fruit.

Various pollination devices to save time and labor have been tried out. Some are still in use, but many have been abandoned. One such device

is the "pollen gun", abandoned but resurrected for use this season. This was a special case where time was pressing and the palms very high. Commenting on the use of this pollen gun, both **Mr. L. Swingle** and **Mr. Robbins Russel** were of the opinion that an instrument of this kind could be used in special cases. It was further brought out that short-cuts in pollination of this kind could be most disastrous. A high set of fruits is most important if large crops are to be obtained and crop success is dependent on thorough and complete pollination, and to date, mechanical devices have not proved very satisfactory. Some of these devices have proved very unsatisfactory. The general feeling, then, regarding the using of such short-cuts, is that they should be resorted to only in emergencies.

With labor short during the harvest, the question of how often and how many pickings are necessary in order to complete the harvest is important. This whole question of reducing the number of pickings thereby saving on labor was discussed by **Mr. L. Rygg**, **Mr. L. Swingle**, **Mr. W. W. Cook**, and **Mr. H. L. Cavanagh**. This discussion brought out the fact that weather for the 1942 harvest season was most satisfactory (very little rain), making it possible to hold large portions of the crop on the trees beyond maturity. The larger number of dry fruit resulting from these decreased pickings was not serious in itself as market conditions were such that dry fruit brought a fair price. **Mr. Cavanagh** reported that the bulk of his crop came off in one picking, with only a very small amount left to be finished up. He also pointed out that favorable weather conditions made this kind of harvest possible. It was emphasized that with rain and high humidity, the quality of the crop can be greatly reduced if adequate picking labor is not available, and that every effort should be made to get the crop off the palms as rapidly as possible since quality fruit is no less important than quantity.