

Museum Documents Review the History of Orchard Spraying

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The Rogue River Valley has no "Silent Spring."

Outdoor life this fall has been pretty noisy, too, in valley orchards with robins chirping while feasting under pear trees. The shortest crop in history of the fruit industry still provides food for the birds and they express their thanks in song.

This doesn't mean that members of the Fruit Growers League are not concerned about spray poisons and the side effects of some toxic insecticides.

They may not go along with the warnings of Rachel Carson's book but they are constantly contributing to the study, which all hope will develop a selective chemical to destroy their enemies and not their friends of the insect world. (To be specific, for instance, the spotted mites but not the lady bugs.)

Much progress has been

made during the years. The request of the Jacksonville Museum for equipment used in early horticulture in Jackson county and for documents relating the history has brought positive proof of this.

Because the pear industry is an integral element in southern Oregon living and its history inseparable from the history of Jackson county, the museum is seeking exhibits to demonstrate each operation in the production of fruit. Spraying is an accepted operation and has been as long as records have been kept here.

The manner in which spraying is done has undergone many changes, however, and so have spray formulas. These changes have been for the better, according to county agents and growers.

Achievements by Research
This has been accomplished through research and experimentation in spite of the fact that as the culture becomes

more intense more pests appear and at the same time the people demand more perfection in fruit.

Until 1880, orchardists used something like a whisk broom for spraying. It was dipped into the solution and whisked about the trees. In 1894 power spray rigs came in. They were powered by steam. In 1900, gas replaced steam, and in 1911 a pressure regulator was devised. The spray gun was adopted in 1914. Before that the rod, made of steel or bamboo with light aluminum lining, had done the work of distributing spray through the trees on branches and leaves.

Aerial spraying was initiated as a commercial project in 1946 by Central Aircraft of Yakima, Wash. The company sent Harold Conner to Medford to launch the project. Test work in this medium had been done earlier.

Before adoption of the air blast sprayer which has been in use since 1944, orchardists

tried using stationary spray stations and thousands of acres were piped for this innovation. The pumper and tank were placed at a central station in the orchard and the pipe lines were laid in a manner to accommodate eight tree rows from one pipe with 200 feet of hose attached. The invention of the air blast sprayer made all this investment obsolete.

The air compressed sprayer used in the early 1900s had two tanks. There was also a barrel sprayer with tower attached. One workman manned the tower to spray the tops of the trees.

The one cylinder gas engines used in spraying in 1914 and 1915 often limited the orchardist to throwing the spray no more than three feet.

Trees Were Banded

In addition to the work involved in crude spraying methods, the orchardist banded the trees to kill moth larva. The bark was scraped and a treated band placed around the tree. The worms, hatched from the moth eggs, sought refuge for the winter under the treated band and were killed. The whole operation in the beginning took one man one hour to each tree. They became more adept after practice.

The old spray formulas contained carbolic acid, powdered lime and snuff, frequently Paris green and arsenate of lead, which were commonly applied, were more poisonous than the chemicals being used today, orchardists insist.

Lead was accumulative and permanent. Present day insecticides deteriorate. DDT, which is being cancelled out by the orchardists, is less toxic but persistent. They are now substituting Guthion.

Black leaf 40 with 40 per cent nicotine also was high in toxicity.

Favor Regulation

Today the chemical industry is in favor of regulation, according to the Fruit Growers League. The chemists present no argument against regulation. But they do object to what they refer to as "statements that have no confirmation through scientific investigation. Industry fights regulation on surmise."

It costs from \$1 to \$2 million to produce a new insecticide. The major portion of this cost is in the investigation which must be made for the protection of the public.

The companies put up the money and it takes about five years to get clearance on a new formula. If the chemists find indications that the preparation is too toxic, it is abandoned along the way.

Tolerance Is Granted

The industry is now granted a tolerance of five parts of DDT to 1,000,000 of produce, according to C. B. Cordy, horticultural agent for Jackson county. It has been found that up to 5,000 parts can be used without liver damage through research of the toxicology section, technology branch, communicable disease center of the Public Health Service.

The Pure Food department picks up samples of fruit every year for analysis. The federal representatives come to the valley unannounced.

The tolerances allowed are not the levels at which damage occurs, Cordy emphasizes. There is a level of tolerance and a level of safety. The danger level is frequently 100 times higher. The orchardists always operate within the level of safety.

The federal food and drug

Features

Sports

MEDFORD MAIL TRIBUNE

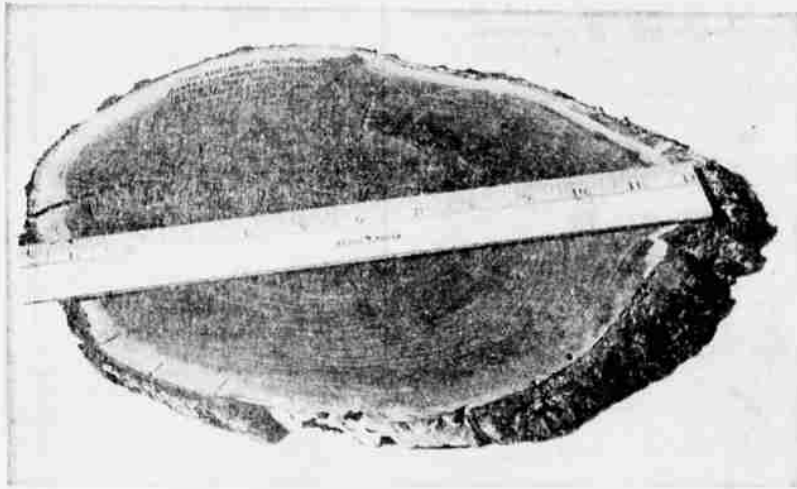
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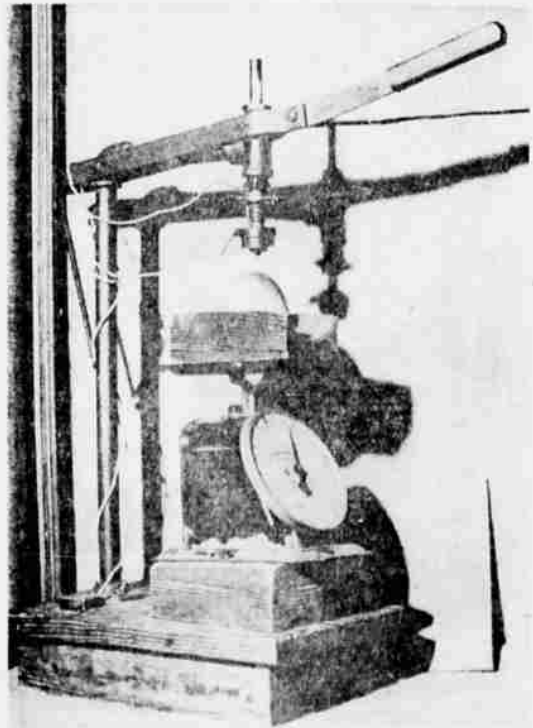
This is the first spray rig to be photographed in the Rogue River Valley, according to information given the Jacksonville Museum, where the photo is on display. The picture was taken by the late Vinton Beall. The two-man hand pump sent spray into the bamboo pole. It took three men to do the job.



Miss Mary Hanley, curator of the Jacksonville Museum, recently accepted diaries and documents, portraying history of the fruit industry, from Stephen G. Nye (left) and Don Root, president of the Fruit Growers League.



Already entered in the fruit industry exhibit at the museum is this cut from the trunk of a peach tree on the pioneer Peter Britt estate. The tree was 56 years old when destroyed by a windstorm in 1910. The trunk as the ruler shows was 12 inches in diameter.



This pressure tester of pears, now on exhibit in the Jacksonville Museum, is the original Oregon pressure tester. It was built in Medford in 1919 by the late Bill Young. Specifications were developed by horticulturists at Oregon State college in cooperation with County Agent C. C. Cate. It was used as a means of determining when pears were ready for harvest. A similar tester has been in use since 1953.



Aerial spraying is used for the application of many formulas. But the leading uses here are for applying copper dust in the spring for blight control and to stop the dropping of fruit by application of hormone spray at harvest time.

(Knackstedt Photo)

administration and the growers are of one mind in wanting to give the public the cleanest, safest and most attractive food in the world.

Artificial Environment

When working with a commercial crop, Dr. Pete Westergard, entomologist at the experiment station, emphasized, the agents are working in an artificial environment. Pears are not native to this area. Neither are the natural enemies of the pests which would destroy the fruit.

Scientists are trying to develop means of using biological agents for control. This has been successful in some crops, particularly alfalfa and cotton. So far attempts have not been successful in dealing with apples and pears. The chemical that kills the unwanted, also kills the wanted, such as lady bugs, lace wings and others.

California growers, however, were able to combat scale by importing lady bugs. The St. Johnswort beetle, imported in Jackson and Josephine counties in 1950, has destroyed the wort, also known as goatweed, on thousands of acres.

The need is to find predators and parasites native to the pear's natural environment.

Pests Are Productive

Most of the pests are very productive, a pair of two-spotted mites have a 50 billion potential. Scientists have learned that they can make some of these bugs sterile by treating them with radioactive material. In Canada and Europe they radiate the insects in the laboratory, then release them in the field. They mate with fertile females and fail to produce offspring. Brit-

ish Columbia and Yakima are doing this in their codling moth experiment.

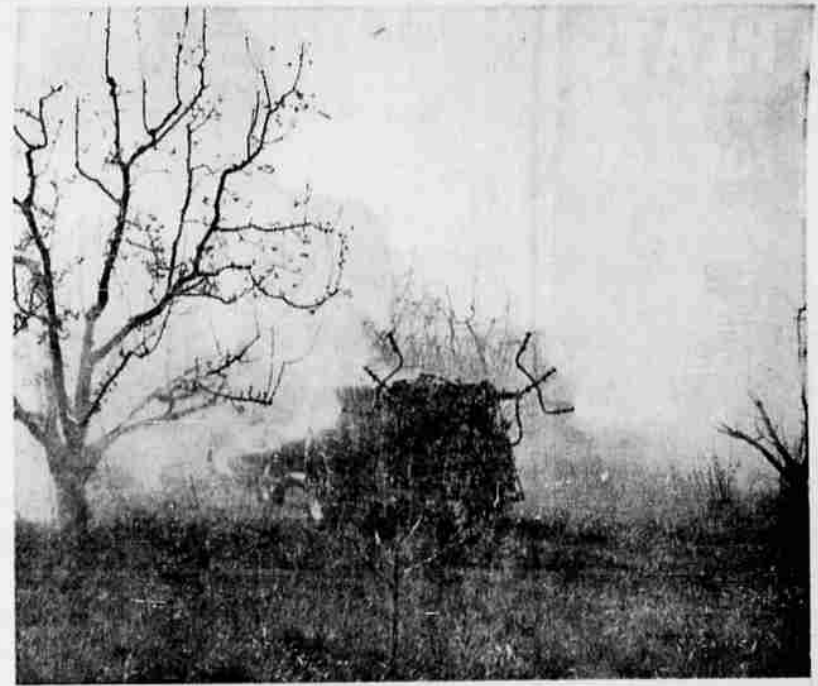
The spider mites have been here since the 1920s. After DDT was brought into use 10 to 15 per cent more fruit was saved from worms. One of the objectionable side effects of DDT, however, is destruc-

tion of the beneficial predators. Guthion is being used more and more in this valley although it is much more expensive.

After using these synthetic materials for more than five years, growers find that the pests have developed an immunity in their struggle for

survival. Mutation is random and a never ending process. But as it continues, so does the research.

It is all a constant battle of man against nature or with nature, depending upon whether you are making judgment from the viewpoint of the bug or the man.



This high pressure spray rig could be operated by one man, the way the spray nozzles were arranged to function. (Knackstedt Photo)



This is the airblast sprayer commonly used in orchards today. All it requires in the way of man-power is someone to drive the tractor. (Knackstedt Photo)