

## Ag and Food Interprets

The North Carolina study presented a graphical relationship between the amount of land fertilized annually and the amount of money which the farmer can spend for application equipment. As a result of this analysis, the study concludes there is a "breakeven acreage," a point at which a farmer will save money if he buys his own application equipment compared with custom application. Above this acreage, farmer dollar savings will increase if he applies liquid fertilizer himself.

### **Economic Study Promises Market**

A cooperative development project was undertaken by USDA and North Carolina State College to achieve a lower cost method for dispensing liquid fertilizers. The inexpensive pump was the result. Production costs, however, turned out to be substantially greater than originally anticipated. An economic analysis was made to determine if a substantial portion of the farmers could afford to purchase the device.

Liberty Mfg. Co. assisted the research agencies in the original field tests and first began producing the pumps commercially in 1954. It now appears that the market for the pump far exceeds that implied by the original analysis. However, Liberty has not been able to meet the demand for the pumps and has licensed the Krause Plow Corp. of Hutchinson, Kans., to manufacture them next year.

It seems that the larger market for liquid nitrogen may be developing in the corn belt of the middle west. Krause will manufacture the pump in Kansas, more nearly the center of the country. Under the agreement, Krause will put its larger engineering staff on the problem to adapt the pump to mass production techniques, probably resulting in a further reduction in cost. Present plans are for production of about 1000 pump units per month.

Krause is already in the farm equipment business and will also be able to provide a distribution system for selling the pump throughout the country.

### **Paramount Interest to Fertilizer Industry**

The development of this pump and the widespread marketing it will receive next year may well be of paramount importance to the fertilizer industry. For if the anticipated buyer's market for nitrogen develops within the next few years, the device developed to aid the small farmer in North Carolina may be an important distribution factor for producers of nitrogen fertilizers, liquid anhydrous, and dry throughout the Middle West.



As the Miller Amendment goes into effect, Rio Grande Valley farmers ask for inspection system operated at point of shipment rather than at markets. They fear long distance disposal problems in cases of contaminated shipments

## Miller Amendment

**Growers, confused about regulation, say they need more clearly defined information for growing clean food crops**

WHEN CONGRESS passed the Miller Pesticides Amendment, the law was hailed by many as the answer to problems of regulating residues. Many experts agree on the necessity of having these regulations, although some say the bill is not yet the final answer.

One Eastern company spokesman says the bill is definitely slowing down progress in the development and successful introduction of new pesticides. Another producer says the bill may dampen enthusiasm for the introduction of new pest-control materials.

From another company comes the comment that the officials of the Department of Agriculture and the Department of Health, Education, and Welfare have not given the pesticide industry a suitable set of interpretations for what exactly is needed in registering tolerances under the new bill. Some of the indefinite answers given by these government agencies appear to be causing confusion in the industry.

A spokesman for a major pesticide concern believes the Miller Bill will be

effective in the long run. It obviously has created problems, he says, but these are not insurmountable. Another observer comments: "It is entirely too early to see how effective this legislation will be. Although it has created certain problems, we have been able to adjust to them promptly because we had already been doing the fundamental work."

### **How Westerners View the Miller Bill**

A Western state official says:

"One of the most serious problems from this state's viewpoint is how to get tolerances established for a particular pesticide on all the crops on which it may be used. Pests move from one crop to another without giving due notice so hearings can be held to establish a tolerance for the different crop. If a chemical company isn't interested in filing a petition and paying fees to have tolerances set on each individual crop, what is the farmer to do? We have operated on uniform tolerances here in the past and we had hoped some similar arrangement could be developed on the federal level."

A company executive in the West says the major criticism "is that it does not single out the relatively nonpoisonous compounds and give them a clean bill of health without much red tape. Instead, it seems to apply the same yardstick to every chemical, whether highly poisonous, hazardous, dangerous, or nonpoisonous. The cost to industry is terrific."

People in the Southwest generally are confused rather than optimistic now about the bill's soundness and usefulness. Most of the optimism, they say, exists with USDA and FDA in Washington.

Some leaders in the industry have said the attitude of government officials is generally helpful, but cautious—perhaps too cautious about translating the law into practice. They say it was a serious mistake to set July 22 as the effective date, that postponement of the date seems to indicate USDA and FDA have not completely solved their administrative problems (AG AND FOOD, August, page 642). Chemical sales have been affected adversely in some areas due to early establishment of the effective date. And confusion has reigned at the state and grower level. Perhaps the better move, according to some authorities, would have been to put the law into effect at the end of the crop season, not in the middle of it.

Farmers in the Rio Grande Valley of Texas understood that vegetables shipped out of the area would not be inspected for residues until the vegetables reached the market, which they say is a hazardous operation. Valley growers seem to favor a regulation or inspection system

whereby all fruits and vegetables would be inspected at the shipping point—sealing up the shipment to signify that the merchandise may be accepted by truckers and railroads. Some shipments of contaminated merchandise are bound to occur at first, they claim, because farmers won't stand idly by and watch insects destroy their crops. Somewhere along the line, farmers or growers are likely to get stuck with return freight on rejected shipments, or be confronted with a long distance disposal problem. Those who doubt whether or not the system of checking residues is efficient and satisfactory say more clarification is needed in cases where the bill applies to vegetables and fruits.

Louisiana farmers are certainly at a complete loss about what steps they should take, when controlling insects and plant diseases, in order to comply with restrictions set up by the Miller Bill. Farmers say they need to have more clearly defined information as to what they can use in the way of chemicals for growing clean food crops, if they are to stay below the tolerance requirements.

The expenses of developing adequate information for USDA and FDA is much greater than many people anticipated. To date, no firms in Oklahoma have attempted to establish tolerances. Since industry in the future will have to determine if USDA and FDA will accept their chemicals, development of new products for the immediate future may be slowed somewhat. But the bill's long range effect may not seriously retard new products coming out on the market.

## Delay of Bud Development

**Research has yet to come up with a really promising chemical to delay bud development**

**W**E DO NOT HAVE, at present, any good means of delaying bud burst with chemicals. And there is no product of major importance in this field on the market today. Some companies have toyed with the idea of setting up a research program to investigate bud delayers, but each time they have decided other fields are more attractive.

Researchers know that some plant hormones will delay bud development under certain conditions, but they still do not know what will happen during unusual weather conditions such as a premature warm spell. It is difficult to duplicate conditions of fruit budding under controlled laboratory conditions.

Even if a technically successful product came out, how would it be received market-wise? Farmers are notably cautious about investing in chemicals that are merely "insurance." For the most part, the work in this field has been left in the hands of government projects, experiment stations, and college research workers, although a few companies have research programs underway. Almost everyone agrees there is need for finding out the fundamental causes of bud delay, and that satisfactory experimental approaches are lacking. And there is another problem to be faced—chemicals for these applications tend to be specific for a single fruit.

Even if effective chemicals were available, the fruit grower in any given area would need several weeks advance warning of a late spring frost. If he delayed bloom three weeks to avoid a late frost, he would delay his harvest for approximately the same length of time. To a southern peach grower this could mean about the same loss of markets as frost damage—the early market is his best customer. Nevertheless, more basic knowledge about the subject is badly needed in order to save our fruit industry millions of dollars annually.

### Tung Losses Heavy

Not a single ton of tung fruit in all of the tung growing states, except Florida, survived this year's frost. The area east of Tallahassee did not experience extremely low temperatures, so growers there were able to produce about 10,000 tons. Trees throughout the Tung Belt (Texas, Louisiana, Mississippi, Alabama, and West Florida) had set a bumper crop by March 23, roughly estimated at 150,000 tons—but it all was destroyed.

**Frost destroyed a bumper crop of tung—150,000 tons—within entire tung belt extending through five southern states**



This isn't the first time tung growers have suffered heavily. Frost nipped almost 90% of the 1939 crop. Tonnage loss, however, was small by comparison, about 10,000 or 15,000 tons. Since 1938, total tung losses have amounted to almost one crop out of four in accumulated production. From 1940 to 1949, crop losses were light; the last six years' destruction accounts for such a high overall percentage.

USDA researchers have tried all the tricks of the trade in order to protect tung orchards from frost. They've investigated the use of smoke, fog, oil heaters, wind towers, helicopters, water sprays, and chemical treatment, with little or no success. Twenty chemicals have been checked during the past 15 years; none have appeared promising. Researchers are now trying to develop late blooming and cold resistant varieties, but at present they can only recommend adequate levels of balanced fertilization, and early cultivation of all orchards not planted to winter cover crops, as a method to improve cold resistance.

### Peaches Take a Beating

Peach crops in the South had their share of frost damage this year, and so did apples and cherries in other sections of the country. Some places like New York state were very fortunate; they have prospects for a full commercial crop of all fruits. But blooms in those areas are relatively late compared with southern fruits.

Back in the early forties naphthalene-acetic acid and certain related naphthyl compounds were suggested as a possible aid to delay bud development of these fruits. Treatment, however, proved injurious. In recent years maleic hydrazide has received considerable attention, but plant response was most discouraging.

California researchers, on the other hand, are having considerable success imparting low temperature resistance to apricots with 2,4,5-T sprays, although the action is not that of delaying bud development. They believe it is just a matter of time until most of the apricots in California will be sprayed with 2,4,5-T to control preharvest fruit drop, to increase fruit size, and to hasten fruit maturity. University of California pomologists had previously investigated chemicals to delay bud development, but they, like many others, dropped the project for lack of encouraging results. Fruit growers are still hoping someone will soon find the chemical identity of nature's growth inhibiting auxin. It causes the rest period of perennial fruit plants—it might well prove to be a signpost on a lost trail.