

Ag and Food Interprets . . .

- ▶ **Liquid fertilizer dealers watch costs on application rigs**
- ▶ **Lower price key to bigger markets for urea-forms**
- ▶ **Colchicine can be valuable tool for breeding large varieties**
- ▶ **Studies of pesticides effects on wildlife urge judicious use**

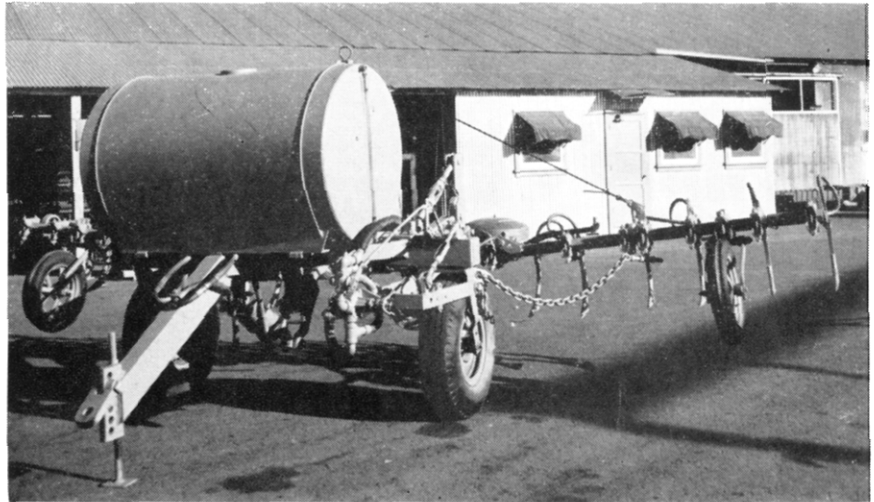
Equipment Management

Liquid fertilizer formulators, dealers need to apply sound accounting practices to application equipment, while long-range trend is to farmer ownership of necessary rigs

THE LIQUID FERTILIZER industry becomes more firmly established each year. And with this "coming of age," it is moving in the same direction as its predecessors in new agricultural techniques—dealer and custom application first followed by farmer application with his own equipment.

The day will undoubtedly come when liquid fertilizer formulators and dealers can confine their activities to selling fertilizer, leaving application to farmers as their "dry" counterparts do today. Meanwhile, they must still carry substantial inventory in application equipment and apply sound management practices to its operation for some time to come, if it is not to be a financial burden. Newcomers to the liquid fertilizer industry see high gross margins between raw material cost and finished goods price, but they may overlook high costs involved in servicing their accounts—equipment delivery, haul-back, and maintenance. Thus, their rents for farmer application or for custom application are apt to be low—in effect, discounts on fertilizer sold. Trouble shows up as shrunken profits within a season or two when carried to extremes, especially in the haste to become established in highly competitive market areas.

Equipment operation costs obvi-



To buy or lease liquid fertilizer rigs is dilemma faced by many dealers, applicators

ously depend on the type of farming community within which a company operates. Costs in California's Salinas Valley, predominantly in vegetables, will differ from those in near-by San Joaquin Valley's vast cotton acreages. Costs will also differ between the West, say, where liquids are almost entirely injected (excepting irrigation application), and the Midwest, where most are sprayed on and plowed down. Specific prices, therefore, are meaningful only within the area to which they apply.

"Catalog" prices for dealer or custom application—rig, tractor, and labor—vary from \$1.50 to \$3.00 per acre in most sections of the country. Rig rent is about 50 cents an acre, with the farmer furnishing tractor and labor. How much these prices are shaded as one liquid company competes with another in a given area is anybody's guess. In California, where liquids are most firmly established, a fairly standard price for rent of an average injection rig is 40 cents an acre, but this may drop to 25 cents or lower in highly competitive regions.

Price differences from area to area may also be due in part to the amount of service offered.

Few companies, apparently, have accurate accounting records on equipment operation. One company dealing in several states in the Midwest says, "Accounting charges to enable us to pinpoint equipment costs would exceed the value gained," and it believes its rough rule of thumb shows rent to equal or exceed operation costs. One of the West's larger and more successful companies, by contrast, has an extensive cost accounting system in operation. Here's what it finds (average figures based on the diversified regions in which it operates):

An average 24-foot injection rig costs about \$2000 new. Such a rig can cover up to about 50 acres a day and work about 100 days a season. If rented at 40 cents an acre, income will be \$2000 for the season, an impressive total until one starts subtracting costs.

First, the company finds useful life of injection rigs to be two seasons, as maintenance costs mount rapidly dur-

ing a third season. Therefore, the rig must earn 50% of the purchase price each year for depreciation. Secondly, the company finds delivery, haul-back, and maintenance total about \$1000 a year. This, coupled with the \$1000 depreciation, means rent must cover the full purchase price each year. If the rig can get in a full 5000 acres at 40 cents per, the company breaks even. Such optimum conditions seldom prevail in this company's experience, and it actually loses on the average at least \$6.00 above the return by rental on every ton of fertilizer sold and applied.

Faced with a two-year service life for equipment, this California company strongly recommends the declining balance, three-year write off permitted for new equipment in computing taxes. (On a \$2100 unit, amortization will be \$1400 the first year, \$467 the second, and \$233 the third.) Only in this way does it feel it can come close to breaking even on equipment costs.

Reaction in western liquid fertilizer circles to the foregoing figures is mixed. Several companies—both equipment manufacturers and operating fertilizer companies—substantiate the “40 cents, 5000 acres” as an average maximum for one season for the rig in question. At least one equipment manufacturer, however, believes these figures should be closer to 50 cents and 10,000 acres. This company also takes exception to an indicated two-year useful life for injection equipment, believes it should be at least five years.

Equipment Purchase: Buy or Lease?

A second problem facing liquid fertilizer companies is equipment purchase. If the company lacks sufficient working capital to pay cash—and many newcomers are apt to be in this position—it must find a credit source. Traditional approach, and one recommended by many established formulators, is through the local bank. Common terms are 25% down and the balance in one or two years (or more, depending on loan size). Interest averages 5 to 6% a year on the amount borrowed. Where a large company establishes a dealership organization, it may lend its credit position to secure a lower down payment for dealers, such as 10% down and the balance in 36 months.

On the theory that formulators or dealers can profit by conserving working capital with a lower down payment and get a more extended line of credit by not having a note appear on

the books as a liability, at least one western equipment manufacturer is promoting a lease arrangement whereby the prospective buyer needs less cash to get the use of equipment. Such leases are written for two years with an option to renew for three, or vice versa. In either case, at the end of the original lease period, the lessee can return the equipment, renew for the proper option period, or purchase the equipment at the then current market value. With either sequence of lease period, the lessee pays four months' rent in advance, amounting to a “down payment” of nearly 17% on the two year option, 11% on the three. Typical payment for \$25,000 worth of equipment on a two-year-lease, three-year-option is \$1237.50 a month. If the option to renew is exercised, payments are about \$5.60 a month for each \$1000 worth of equipment rented.

With these equipment management problems in the background (or foreground, depending on your view), it is not too surprising most in the liquid fertilizer industry are lending support to farmer ownership of equipment. National Nitrogen Solutions Association, for instance, is actively working with equipment manufacturers to develop new applicators and standardize fittings. National raw material suppliers, such as Allied Chemical & Dye's Nitrogen Division, devote ads in farm papers to promote farmer ownership.

Equipment manufacturers themselves support the trend to varying degree. Some, such as California's Fabricated Metals, still confine sales to formulators and dealers but acknowledge farmer ownership is probably coming. Indication of how formulators and dealers will promote this ownership comes from John Blue Co. (Huntsville, Ala.). General Manager W. D. Tucker puts it this way: “We are firmly convinced distributors and manufacturers will intensify sales efforts on equipment. In some instances they will sponsor their own brand names and in others sponsor equipment already manufactured by companies such as ours.”

A word of caution comes from one prominent company, however, which “feels quite strongly that liquid fertilizer application can best be controlled by the dealer because the industry is still in its infancy, and custom service or supervised application by the sales organization is paramount.” To this end, many of this company's dealers discourage use of custom applicators, and they retain a service relationship on those accounts where a farmer owns his own equipment.

Urea-Forms

Slow release nitrogen products find sizable market for use on turf and ornamentals; lower price key to expanded use

THE UREA-FORMALDEHYDE fertilizer products hit the commercial market only last year, but already promotion is being stepped up and industrial sources are forecasting greatly increased use this season. Advantage of the urea forms is that they have low initial solubility and release nitrogen slowly for a prolonged period; the problems of burning and leaching are eliminated. So far price has ruled out most applications other than to ornamentals and turf.

Technically the urea forms have been defined as mixtures of polymethyleneureas which exhibit urea-formaldehyde mole ratios greater than 1, nitrogen contents in excess of 37%, low solubilities in water and organic solvents, and lower rates of nitrification in soil media than the more soluble forms of chemical nitrogen fertilizers.

Development of these newly marketed compounds dates back to pre-world war II days. The USDA in collaboration with chemical companies producing urea-formaldehyde resins did the early field testing. Later, pioneering work was done on turf grasses at Penn State University and on ornamentals at Rutgers and the University of California. In 1946, trials were conducted by the North Carolina Agricultural Experiment Station on field and plant bed tobacco.

The fertilizer products differ from the highly insoluble plastic resins in that a higher ratio of urea to formaldehyde is used in the fertilizers. Quality measurement is of particular importance. Recognizing this the AOAC last year announced a new method for determining the nitrogen activity index of urea-forms. The activity index, arrived at by routine chemical methods, correlates closely with the wide spread greenhouse and field tests.

The reaction of urea with formaldehyde must be closely controlled to produce a polymer in which the nitrogen will be mineralized at a desirable rate when the polymer is added to soils under favorable environmental conditions. Transformation of urea in soils is a biological process depend-