

Industrial conveyors help streamline new Milk Producers feed plant in California.

LESS THAN a year ago, the preparation and loading of a bulk order at the Milk Producers Association of Central California Feed Mill in Modesto was a good three-hour project.

Today the same task takes about 15 minutes.

The big difference is the Association's new plant which went into operation last fall.

The new installation — engineered by the Hunter-Wagner Company of Fresno — is a model of cleanliness, compactness and operating efficiency. And perhaps most important, it has transformed the Association's feed manufacturing from a virtually manual process into a highly automated one-man operation.

Field Representative Jack Rajewich (pronounced Rye-Wich) — who nursed the new plant from an idea into reality — says that feed sales are already up 20 per cent over last year and are "still growing."

Rajewich describes the plant as a "satellite" mill designed to provide high-quality dairy feed and ultra-fast service for the Association's 140 members, most of whom are located within a 20-mile radius of Modesto.

These Association members feed approximately 25,000 head of dairy cattle, producing some 50,000 gallons of milk per day. The milk is marketed in retail food stores in the "Dairy Valley" area around Modesto, and is shipped in bulk to the Los Angeles and San Francisco areas.

About one fifth of the Association's feed mill production is sold to non-members.

Currently, feed production is averaging 1,300 tons a month. Daily production will range anywhere from 60 to 120 tons.

Delivery to customers is made via three bulk trucks, including two brand new Chevrolet V-6 diesel tractor units.

Actually, the plant is designed for a maximum production capacity of 300 tons per day.

According to Rajewich, expansion plans are already under consideration, and the actual operating capacity of the plant could be more than doubled with only minimum modification.

Presently, about 20 per cent of the orders processed by the new mill are for all-pellet formulas, while 80 per cent of the orders are for mixed formulas of grain, pellets and concentrates.

Feed ingredients are stored in a cluster of nine

5,200-cubic-foot silos which are 12 feet-8 inches in diameter. Each of the 65-foot-tall silos holds the equivalent of 2½ rail cars of bulk ingredients.

The materials stored in the silos include coconut pellets, rolled barley, whole barley, milo, rice bran, hominy pellets, sugar beet pulp, millrun and cottonseed cake.

The "nerve system" of the Milk Producers Association plant is a network of Industrial Machinery Company screw conveyors, "Multi-Flow" drag-type conveyors and an Industrial No. 412 ribbon mixer with a 150-cubic-foot capacity.

The "work horses" of this system are the eight 12-inch screw conveyor units which transfer the bulk ingredients from the storage silos to the weigh hopper directly above the mixer. The screws are fed from specially designed transfer hoppers mounted on the bottom of each silo.

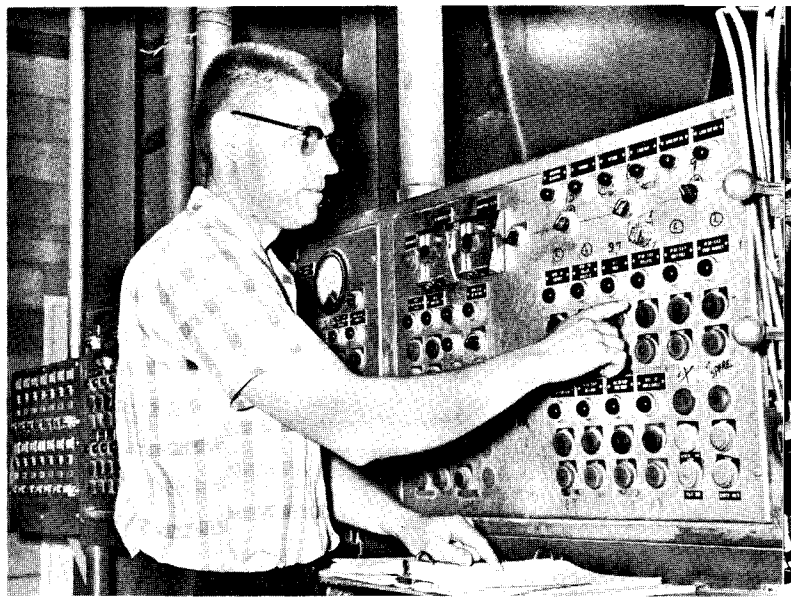
The clustered arrangement of the storage silos, coupled with the fact that the conveyors must bypass structural supports, requires the conveyors to operate at different angles, ranging from 0 degrees to 24 degrees.

In many cases, the clearance between the conveyors and structures is less than a quarter of an inch.

These close tolerances, plus the fact that the flanges for the silos, transfer hoppers and conveyor inlets were fabricated by three different manufacturers, led designers to expect some difficulty in installation.

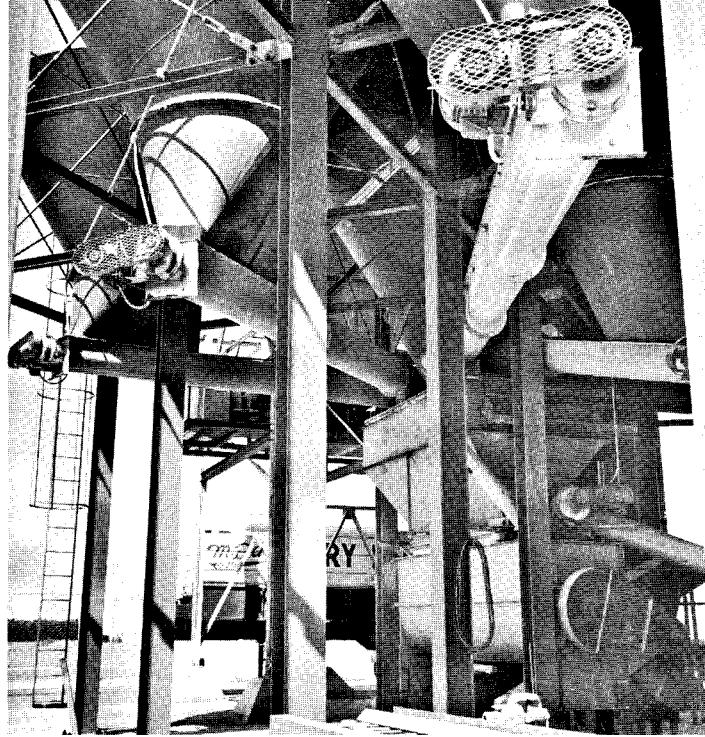
However, the various units went together almost perfectly. According to Rajewich there was little field re-work required.

In addition, some difficulty in feeding the ingre-



The entire operation of the Milk Producers feed plant is controlled by one man from this central control panel. Here Field Representative Jack Rajewich, who nursed the mill from an idea into reality, formulates a custom feed order.

Industrial equipment receives, conveys and mixes feed ingredients in this model plant.



These 12-inch Industrial screw conveyors move feed ingredients from storage silos to the central weigh hopper above the mixer unit.

dients from the tanks had been expected. According to Rajewich, it was originally felt that the unusual hopper and conveyor arrangement might cause the materials to bridge around the screws, especially during the initial start-up. However, the screws have fed the ingredients perfectly since the very first day of operation.

"We have had no difficulty whatsoever in unloading the silos," Rajewich stated.

In operation, the new plant is a model of speed and

efficiency. An order for a custom feed formula telephoned by a local dairyman can often be delivered within half an hour.

Bulk ingredients are received either by rail or truck, and incoming ingredients are fed to bucket elevators by means of a 20-inch Industrial screw conveyor. The elevators distribute the ingredients to their proper silos.

In the formulation of a feed order, the ingredients are moved from the silos to the weigh hopper by means of the 12-inch screw conveyors described earlier.

After batching in the weigh hopper, the ingredients are discharged directly into the Industrial No. 412 mixer. From the mixer, the batch is conveyed to a bucket elevator by means of a 16-inch screw conveyor. The feed is then elevated to the load-out tanks where molasses may be added if necessary.

If molasses is added, a pair of 12-inch mixer screws provide final blending before the load is discharged into the waiting truck.

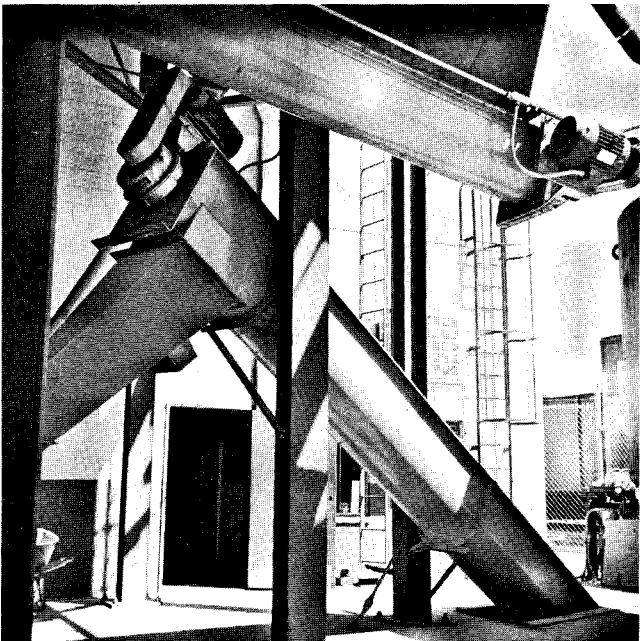
Alternatively, if the feed is to be pelleted, the batch may be conveyed from the central mixing unit to the grinder.

If minerals or vitamins are to be "cut in" during the batching operation, they are fed to the mixer just before the mixing cycle begins. The minerals and vitamins are moved by a 9-inch Industrial Machinery Company "Multi-Flow" conveyor which provides maximum clean-out of additives between feed batches.

As stated earlier, feed formulas prepared at the plant may consist of all-pellet batches or combination pellet-grain-concentrate formulas.

Pellets are handled with Multi-Flow conveyors with bypass inlets to prevent crumbling and breakage. Rajewich reports that the Industrial Multi-Flow conveyors have performed exceptionally well.

The entire operation of the plant — ingredient receiving, grain cleaning and rolling, grinding and pelleting, mixing, batching and the automatic boiler plant — is handled by one man from a central control panel.



Incoming feed ingredients are received and conveyed to bucket elevator by this 20-inch under-track Industrial screw conveyor. Ingredients arrive both by truck and rail.