High-Lysine Corn

Tomorrow's One-Shot Ration?

Hogs cannot live on hybrid corn alone, but someday they may thrive on unsupplemented high lysine corn

Lysine and tryptophan are amino acids essential for high quality protein. Both are deficient in all grains now used as feed Trying to finish hogs or poultry without a supplement to supply these amino acids would be like trying to build houses without nails.

This fall three seed companies announced that they would have enough seed to plant 18,000 acres of high-lysine corn next spring This indicates that large-scale production may be closer than the researchers who discovered high lysine corn had expected.

The high lysine corn story began over 30 years ago at Cornell University, when scientists found a mutant recessive gene in opaque corn and named it opaque-2 The effect that the gene has on the protein content is adequate for most young animals: 12 percent suffices for mature animals

of corn was discovered only recently.

In 1963, Oliver E Nelson and Edwin T Mertz, scientists at the Purdue (Indiana) Experiment Station, were searching for ways to increase protein value of corn. During their research, they discovered that opaque-2 samples had twice the lysine and tryptophan content of normal corn.

Research was partly financed by funds from the U.S. Department of Agriculture.

The opaque-2 gene was introduced into several lines of corn, which showed increased protein content—as well as having twice as much lysine and increased tryptophan The protein content of the high-lysine varieties was from 12 to 15 percent, compared to 8 percent in regular corn

A level of 15 percent portein

Nutritional effects of high-lysine were then tested on rats and pigs, which gained weight 3 6 times faster than animals fed on normal corn alone. The weight gain on animals tested was similar to animals fed on hybird corn with a soybean meal supplement.

Other tests indicated that high-lysine corn diets would improve human diets. When used as the sole source of protein in young children's diets high-lysine corn's value approached that of skim milk. In some recent tests, South American children suffering with kwashiorkor, a severe protein deficiency disease, recovered when high-lysine corn was their only source of protein

Yeilds of corn crossed with the opaque-2 gene averaged 15 percent lower than regular corn However, some of the lines did yield the equal of their normalat 8 8 percent

counterparts. With proper selection, it should be possible to develop high-lysine corns to equal the highest yielding lines

If high-lysine varieties do yield as high or nearly as high as hybrid corns presently grown, some changes can be counted on

Sale: High-lysine corn will be rated on its protein feeding value, not just on its moisture content New marketing arrangements will arise so the grower can benefit from the high protein content.

Use: High-lysine corn will compete with soybean meal as feed for hogs and poultry Hogs and poultry, which consumed 62 percent of the corn fed in 1967, do not manufacture thier own amino acid requirements as do cattle, sheep, and goats Presently soybean meal supplies their lysine needs, and during 1967 hogs and poultry consumed 60 percent of soybean meal fed

One study projects that if high-lysine corn yields are 94 percent of regular hybrid corn yields, the price of high-lysine to a hog producer would be equal to that of hybrid corn plus soybean meal If high-lysine yields equal that of regular corn, feed costs savings are projected

No studies on high-lysine effects on the poultry industry have been made.

Consumers: Some food companies are already at work on high protein corn products Advertising, which is quick to note improvements, can be expected to make the most of lysine So, hi protein corn flakes with lysine may well appear

Foreign diets In some African and Central American countries, corn is the major food eaten.

Tortillas made from high- lysine corn will supply much needed protein to children, especially those under 4, who need it for brain development.

Safe Operation

Correct installation of an automatic washer or dryer is important to the operation of the appliance, reminds Helen E. Bell, Penn State extension home management specialist A competent maintenance man can best handle the job A dryer, gas or electric, must be connected to exhaust ducts leading outside For electrical safety, all major appliances should be grounded, either by a separate wire or with a three-prong plug and outlet.