

Vegetable growers can make no-till work for them

UNIVERSITY PARK — Growers of some vegetables in Pennsylvania may be able to reduce soil erosion and save time, energy and money by switching to the "no-till" or minimum-till techniques already successful for many crops.

So say two Penn State researchers who found that potatoes, sweet corn and particularly snap beans grow well when planted in unplowed or virtually undisturbed soil.

Now in their third season of testing are Doyle W. Grenoble, superintendent of the University's Horticultural Research Facilities, and Ernest L. Bergman, professor of plant

nutrition.

They're trying to find what combination of crop, fertilizer, pesticide, cover crop and tillage will yield the optimum quantity and quality vegetables.

"It's long been assumed that some vegetables having shallow root systems will produce better yields in finely prepared soil," says Bergman. "Our preliminary findings show this isn't necessarily so for all vegetables.

"We're very encouraged by our results. Not only are there large potential savings of soil quality, costs and energy, but no-till or minimum-till offers the possibility of planting and

harvesting in wetter-than-normal soils."

Writing in the spring issue of the University's "Science in Agriculture," Grenoble and Bergman describe their 1978 and 1979 comparisons of no-till and minimum-till to three types of conventional tillage.

They use a disc harrow, moldboard or chisel plow to penetrate the soil to respective depths of 6, 8 or 12 or 14 inches; followed first by one or more passes with a harrow to break up clods, and then by use of a rotary harrow to prepare soil beds.

In 1978, planting in soil which contained the previous season's corn stalks or tomato plant

residues, they used no-till techniques to grow muskmelon, tomato, potato and sweet corn.

Last summer, they used as mulch a winter wheat crop they had deliberately killed in the spring; and they experimented with no-till as well as with two methods of reduced tillage.

Due to production problems, they dropped melons and tomatoes. They substituted beans believing they'd be a good no-till crop, because their short growing season prevents weeds from competing too much, and their root systems and large seeds require less soil preparation.

Essentially, they found that while in this specific testing period no-till tomato yields were three to four times lower than for conventional methods, melon yields were down one-fourth, a statistically insignificant amount; and the snap bean crop was one to two-and-a-half times larger.

Also, while the no-till sweet corn yield averaged almost one-third less in 1978 than conventionally grown sweet corn, the following year the gap narrowed considerably with no-tillage. And while no-till potato tonnage was almost one-third less the first year, in 1979 the yield differences were minor.

and pesticides should be used; and how soil type influences these choices."

"We believe," Bergman adds, "that for some vegetables no-till can match conventional tillage yields, can cut growers' costs and even can help improve soil structure and thereby reduce erosion — because continuous plowing breaks down the soil's natural structure and texture."

But with the prospects also come problems, they explain.

Thus, some of the things that must be studied are whether several no-till seasons might have to be interspersed with plowing, because the soil might become too compacted; whether failure to disturb the soil might not cause increased mice populations; and whether new conditions will not be conducive to increased pest and disease problems.

"While these are some of the questions which must be answered," says Grenoble, "we believe no-till has definite possibilities for some crops, under certain conditions. If we can find the optimum crops and conditions, we'll have achieved a radical advance in vegetable production."

"We think the winter wheat mulch may have made the difference," says Grenoble. "To find out, we're again testing potatoes and beans.

"At the same time, we know that many other inputs are important, and we're trying to determine which of many no-till variations offers the best prospects for different vegetables.

"Some of the things we're looking at are no-till versus minimum-till; what kind of sod or previous cover crop is best; how much fertilizer

Advantages of interval feeding for sows outlined

CHICAGO, Ill. — Pork producers who limit-feed their sows on the ground or on a concrete apron should consider an interval feeding program, suggests James D. Hedges, manager of swine research for the Wayne Feeds' Research and Development Center at Libertyville, Ill.

The interval feeding program allows the bred sows access to a self feeder for 4-6 hours every third day. This program runs from breeding to one month prior to farrowing at which time

the sows should be fed every other day.

Hedges points out the advantages of limit feeding, include:

- reduced exposure of gestating animals to bacteria and parasite eggs on the ground or concrete;
- reduction in the over-condition and under-condition of sows due to the "boss sow" problem;
- more uniform litters and;
- reduced labor.

Some guidelines Hedges says will help make the

interval feeding program successful are:

- have no more than 20 sows per 12-hole feeder;
- use the same ration as would be used for 4 lb. feeding daily;
- provide water at all times;
- select round self-feeders for large sows; and

—add fiber to the ration to help stool condition; fiber also tends to slow the rate of feed passage.

The interval feeding program can greatly reduce parasite and bacterial problems for producers who are now feeding sows daily on the ground or concrete, Hedges concludes.

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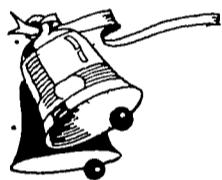


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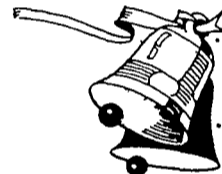
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