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What About Soybeans in 1943?

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What About SOYBEANS in 1943?

IOWA HAS SPRUNG into soybean production so fast that farmers still have many questions about the crop even though they grew 2.34 million acres last year. But despite their questions, they have learned a great deal, for they are now getting average yields of close to 21 bushels an acre as compared with less than 15 a few years ago.

The government is calling on Iowa farmers to produce in 1943 94 percent of the 1942 acreage, which means another big bean year. Our work on soybeans at the Iowa Station may help farmers solve their problems in carrying out their part of the big program. Here are a few suggestions for soybean growing:

1. CHOOSE THE RIGHT VARIETY. Richland soybeans will give best results in the northern two or three tiers of counties. The Mukden and Manchu varieties are recommended for growers in north central Iowa and Illini and Dunfield are perhaps the best adapted varieties for southern Iowa.

2. HAVE THE ROWS SPACED PROPERLY. The highest yields are obtained from planting in rows 20 to 30 inches apart, although there is no advantage to this method unless the beans are cultivated. Rows of varied widths can be obtained by using a drill and stopping up part of the holes. Farmers without a drill can get a 21-inch row by doubling back with their corn planter. Plant in rows as close as possible to enable cultivation with the available machinery.

3. PLANT ENOUGH SEED. One bushel per acre of GOOD seed is the rate to plant medium-width rows spaced from 21 to 36 inches apart. Narrow rows drilled 7 inches apart require 2 bushels per acre, while wide, 42-inch rows require slightly less than. 1 bushel—deduct 5 to 15 pounds. Seed planted at these rates must germinate 90 percent or better and must be free of sticks, stones and cracked beans, etc. If the seed germinates only 50 percent, twice as much should be planted.

4. PLANT EARLY. Plant from May 10 to 25 if grown in rows but delay seeding until May 25 to May 31 if drilled solid in order to kill as many weeds as possible before planting.

5. BE SURE TO INOCULATE. Failure to inoculate the seed may result in a significantly lower yield of beans with lower protein content, because of the large amounts of nitrogen required by the beans. Unless inoculated most of the nitrogen must come from the soil. Inoculated plants are able to obtain a considerable part of their nitrogen from the air through the bacteria in the nodules on their roots.

How Varieties Differ

Early maturing varieties of beans are desirable because they will ripen and can be harvested before it is time to start picking corn. Late maturing beans may be caught, as they were last fall, by an early freeze and be damaged seriously.

Among the early maturing varieties, Richland, released from Indiana in 1938, has been tested by the Iowa Station through a period of years and individual farmers have had enough experience with this variety to be enthusiastically for it. In the northern two or three tiers of counties one can expect it to be among the highest in yield,
Above is one of the soybean varieties in the testing plots at the Iowa Station which has been found to lodge badly. In the same tests the variety above is standing very well. Mukden and Richland varieties are very lodging resistant.

as well as having the advantage in early maturity, lodging resistance and high oil content. There is a large stock of Richland certified seed—certified as to its genuineness of variety, freedom from mixtures with other varieties and from noxious weed seed. Certification also insures a satisfactory germination.

The Mukden variety, distributed from the Iowa Station in 1932, is now the most extensively grown bean in the north central part of the state. It is a good yielding variety, well adapted to this area, and more resistant to lodging than the other varieties, except Richland, generally grown in the state.

Manchu, also grown quite generally in central Iowa, has given satisfactory results. It lodges slightly more than Mukden and is a few days later in maturity. There are a number of strains of this variety.

In the south central and southern part of the state Dunfield and Illini are perhaps the best from the yield standpoint. They are later in maturity than Mukden and more susceptible to lodging on the richer soils. In normal seasons Dunfield and Illini will yield more than Richland in the southern half of Iowa.

Comparative yield, lodging, maturity, and plant height of the varieties discussed above are shown in the following table. These data were obtained from tests for a four-year period in northern and for a five-year period in central Iowa.

The planting of unknown or unadapted varieties of beans has been responsible for unsatisfactory returns in some instances. The old Midwest variety, camouflaged under such names as "McClave," "New London," and "the new bush bean," and for which extravagant claims were made and fabulous seed prices asked, gave such poor results in 1942 that it should be forever out of the picture. At Ames it yielded only half to three-fifths that of the standard varieties and in northern Iowa less than half.

Consideration of seed quality is of greater importance this year than for many years past. The early freeze last fall seriously damaged many lots, and we can't afford to risk low acre returns because of poor germination. We must make certain of the vitality of bean seed well in advance of planting time.

**Rotations; Fertilizers**

Under most Iowa conditions soybeans should follow corn in the rotation. Corn stalks should be plowed under to permit preparation of a good seedbed. Soybeans may follow oats in the rotation that a grass or legume seeding has not been made with the oat crop.

Many new growers of soybeans are asking about the effect of a soybean crop on the yield of crops to follow in the rotation. In another article in this issue Mr. Norum discusses the results obtained from a study on Iowa farms of the effect of soybeans on the yield of corn the following year. In these studies, made in 1942, corn consistently yielded more following soybeans than following a corn crop. Studies also have been made at other Experiment Stations to determine the yields of crops following soybeans in the rotation. At the Ohio Station, as an average for a 14-year period, the yield of wheat following soybeans was 3.4 bushels per acre more than following oats. At the Indiana Station, over a 15-year period, the yields of corn, oats and wheat were all larger following soybeans than following any other crop except clover.

Fertilizers applied directly to the soybean crop usually have not given profitable increases. However, when fertilizers and lime are applied to other crops in the rotation, the productivity of the land is increased, and soybeans, like any other crop, respond favorably to increased productivity. Therefore, when fertilizers are used they should be applied to some other crop in the rotation.

**LEADING SOYBEAN VARIETIES COMPARED**

Table: LEADING SOYBEAN VARIETIES COMPARED

<table>
<thead>
<tr>
<th>Variety</th>
<th>Yield per acre</th>
<th>Lodging grade</th>
<th>Month and day ripe</th>
<th>Height in inches</th>
</tr>
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<tbody>
<tr>
<td>Richland</td>
<td>25.7</td>
<td>1.6</td>
<td>9-20</td>
<td>35</td>
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<tr>
<td>Mukden</td>
<td>24.0</td>
<td>2.2</td>
<td>9-25</td>
<td>45</td>
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<tr>
<td>B. H. Manchu</td>
<td>27.8</td>
<td>2.9</td>
<td>9-37</td>
<td>41</td>
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<tr>
<td>Dunfield</td>
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<td>3.2</td>
<td>9-30</td>
<td>30</td>
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<tr>
<td>Illini</td>
<td>25.4</td>
<td>3.6</td>
<td>10-1</td>
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<thead>
<tr>
<th>Variety</th>
<th>Yield per acre</th>
<th>Lodging grade</th>
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<tbody>
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<td>9-17</td>
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<tr>
<td>Mukden</td>
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<td>2.3</td>
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<tr>
<td>B. H. Manchu</td>
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<td>3.1</td>
<td>9-23</td>
<td>40</td>
</tr>
<tr>
<td>Dunfield</td>
<td>30.9</td>
<td>3.3</td>
<td>9-27</td>
<td>39</td>
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<tr>
<td>Illini</td>
<td>30.8</td>
<td>4.0</td>
<td>9-28</td>
<td>42</td>
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</table>

*Lodging grade 1 to 5 (1 erect, 5 lying down). B. H. Manchu (Black Hilum Manchu) is a strain believed to be slightly earlier and more lodging resistant than most of the strains grown throughout the state.*
Easy Crop to Grow

All in all there is less risk in growing beans than in any other extensively grown Iowa crop. It is adapted to an unusually wide range of soils. It will make a relatively better growth on low fertility soils than any other crop. It can be grown successfully on distinctly acid soils as well as neutral soils. It is one of the most drought-resistant of our crops. It is the one crop grown on an extensive acreage that is not subject to chinch bug injury. There is an unusually long planting period during which the crop will stand with comparatively little loss.

Getting the soybean crop harvested this past fall brought grey hairs to many farmers. But most fields of beans were harvested satisfactorily before winter set in, even though many fields were damaged by the early freeze. Using the earlier varieties and seeding soon after corn planting should avoid this trouble in the future.

Iowa farmers are definitely in the soybean program. With the 1942 experience the '43 crop should be the best ever.

Publications on soybeans, listed below, can be had by addressing the Bulletin Office, Iowa State College, Ames, Iowa:

Bulletin P30 "Soybean Production in Iowa."
FS-51 "Soybeans—New Vegetable for Iowa Gardens."
FS-52 "Harvest Labor Problems."

Beans CAN Whip Weeds

Soybeans ordinarily are not considered good weed fighters, but at Cherokee, Iowa, where Dr. A. L. Bakke of the Iowa Station has been working on weed control, he found that soybeans properly handled are a valuable crop in smothering out weeds.

The plan followed there in smothering Canada thistle and creeping jennie is to plow the ground fairly deep and work the seedbed down, rolling it if possible, and planting soybeans the same day it is plowed. The beans have been drilled in at the rate of 3 to 3 1/2 bushels to the acre. They are either cut for hay or combined. As soon as the beans are harvested the ground is plowed. The next spring it is plowed again and the beans planted the same as the previous year.

Two years of this treatment completely whipped Canada thistle in a field they had badly infested for 20 years, Dr. Bakke reports.

Soybeans grow so rapidly and shade the ground so thoroughly that if the early weeds are kept down, beans are not bothered later in the season and may, in fact, be used to smother out some of the weeds such as Canada thistle and creeping jennie.