HARVESTING SMOOTH DRY PEAS

by

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Federal Cooperative Extension Service
Oregon State College
Corvallis

Cooperative Extension Work in Agriculture and Home Economics
Wm. A. Schoenfeld, Director
Oregon State College and United States Department of Agriculture, Cooperating
Printed and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914
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Extent of Industry. Smooth dry peas are an extensive crop in Oregon for the first time in 1943. The state will have 40,000 acres or more this year. The crop has been grown occasionally in Oregon before on a small scale, but the peas have been a standard crop in the Palouse area of Washington and Idaho for many years. The 1943 acreage in Washington alone will probably exceed 300,000 acres. Many people have therefore had experience with them and this discussion summarizes some of their experiences.

Source of Information. Most of the material contained in this circular was obtained by interviewing growers, processors, implement dealers, and agriculturalists in Washington, Idaho, and Oregon.

Methods of Harvesting. Methods of harvesting smooth dry peas include (1) direct combining; (2) mowing, and combining from the swath or windrow; and (3) mowing, bunching, and hauling to a stationary thresher.

Regardless of the method used, 10 percent or more of the peas will probably be lost by shattering. While it is desirable to handle the peas in a way that will cut shattering losses to a minimum the grower need not feel unduly concerned if he sees a considerable number of peas on the ground after harvest. Many of these need not be lost, as hogs will pick them up if turned into the field.

Direct Combining. Direct combining of smooth dry edible peas is the method preferred by most growers when circumstances permit, as it requires only one operation over the field. For successful direct combining the peas must be uniformly ripe, and reasonably free from weeds.

When direct combining, the use of a special pea cutter bar and reel is desirable. The pea cutter bar is so constructed that it floats on the ground, being flexibly connected to the combine header platform. A space between the bar and platform permits rocks and clods to escape without being transported upward onto the platform canvas. The flexible connection of the bar also permits it to cut much more closely to the ground than would otherwise be possible. The special pea reel has spring wire fingers on the hats, which are operated by an eccentric connection in such a manner as to cause the fingers to remain in a near vertical position as the reel revolves. This enables them to enter the pea vines on the ground, lift them upward toward the platform and then release them without excessive wrapping. Special reels and cutter bars of this type are manufactured in the Pacific Northwest. Consult your county agent for further information.

Mowing and Combining. Mowing the peas before combining permits starting the harvest earlier than can be done if the peas are allowed to ripen enough for direct combining. Mowing is also resorted to when an excessive growth of weeds in the peas makes it advisable to harvest them by direct combining.
One practice which has proved quite popular is to mow the peas with a tractor-mounted mower, extending the wheels on the tractor to a width corresponding to the length of the cutter bar. The divider board on the outer end of the cutter bar is adjusted to turn the edge of the swath over enough to provide clearance for the tractor wheels as the tractor straddles the swath on the following round. Thus the major part of the swath lies flat in its natural position and the wind is less likely to roll the cut peas into piles, as may occur when using the type of windrower which rolls the swath completely over. Regular windrowers roll the swath completely out of the path of the tractor on the next round, but the windrows thus formed are more subject to movement by wind. Some growers use a tractor-mounted windrower which cuts the pea vines, lifts them onto a platform canvas and deposits them in a windrow at the side of the machine. This windrower is much like the header platform of a large combine, and uses the same special pea cutter bar and reel equipment.

When the peas are combined from the windrow the use of a special pea bar is not so essential. Regular cutter bars with lifter guards, as commonly used for hairy vetch and similar crops, will ordinarily prove adequate, especially with small five or six-foot combines which can cut closer to the ground than the larger machines. The use of a revolving pick-up attachment on the small combines is also generally satisfactory. The special pea reel is recommended when combining either from the swath or windrow, with both large and small machines.

**Mowing and Threshing.** Growers who mow and swath or windrow their peas and then haul to a stationary thresher give the following reasons for using this method of harvesting:

1. The crop can usually be harvested sooner than by combining, as the peas can be mowed, windrowed, and bunched when still rather green.
2. When the peas are windrowed and bunched, they can be hauled to the stationary thresher and threshed without delay due to heavy dew or light showers, which usually delay combining.
3. Since the peas can be cut when rather green, the straw is of more value as feed for livestock.
4. This method does not scatter weed seed over the field as much as combining does.
5. In-mature areas, such as draws, north slopes, etc., can be mowed later, with less inconvenience than when combining.

A recommended procedure when the peas are to be threshed in a stationary thresher is to mow as green as permissible, using a windrower on the mower. It is desirable to bunch them immediately after mowing. This may be done as a separate operation, or in some cases it is done by attaching a dump rake on a hitch extended to the left of the tractor on which the mower is mounted, and bunching the peas as they are mowed.

**Capacity of Harvesting Machines.** In general a fourteen to sixteen-foot combine can harvest around 300 acres of peas during the season. The 1942 season in the Palouse area was especially favorable and some growers harvested as much as 700 acres with one machine. This, however, is exceptional and it is not safe to plan on harvesting more than 300 to 350 acres with a large machine. The capacity of the five or six-foot machines will be about half that of the larger combines.
The capacity of a combine in peas, in the Palouse area, is considered to be about half of its capacity in wheat. This is largely due to the fact that heavy dews or light showers will cause more delay in combining peas than wheat. Some growers report that they do well to average six hours of operation per day when combining peas. Many recommend having two combines; one equipped for wheat and the other for peas, the wheat combine for use on wheat in the forenoon and the pea combine for use on peas in the afternoon. The peas themselves are relatively easy to thresh, but the straw is hard to handle when damp and tough.

**Threshing Mechanism Adjustments.** The grade requirements for U. S. No. 1 peas limit split peas to 0.5% while cracked seed coats are limited to 3%. Split peas or peas with cracked seed coats are good only for feed; consequently such peas represent a considerable financial loss to the grower. For these reasons, it is important to have the threshing mechanism of the combine or thresher properly adjusted, so as to hold the percentage of damaged peas to a minimum.

One essential adjustment for threshing peas is to slow the cylinder down to about 400 revolutions per minute. It is necessary to remove most of the concave teeth in machines using teeth on the cylinder and concaves. On a 28-inch cylinder from five to seven teeth are used in the concave bar. Some growers sharpen the front edge of the concave teeth, while others cut the tooth off near the hub, slit it, and weld a mower knife section in the slit in such a way that the knife section will rest edgewise in the concave bar. This arrangement is especially helpful in cutting damp, tough straw so it will pass through the machine.

On the rub-bar type of machine the clearance between the cylinder bars and concave is increased considerably over that required for threshing small grains. For the initial adjustment, follow the recommendations in the instruction book for each machine. Further adjustments will be determined by the results obtained.

Devices sometimes used to reduce the number of peas damaged in the threshing mechanism include the use of belts and buckets in the combine elevators in place of steel chains and plates, and riveting a strip of belting along the edge of augers to give a tight fit between the auger spiral and its housing.

Pickers above the straw racks will cause considerable trouble unless they are shielded or covered with sheet steel or wood. One practice is to use a board about one-half inch narrower than the length of the teeth, boring holes through the board edgewise to accommodate the picker teeth. Thus when the board is placed over the teeth, they project approximately one-half inch beyond it. Other operators cover the picker teeth with lengths of sheet steel folded so as to cover the teeth completely. Either method converts the picker into a beater, and reduces wrapping of the pea straw.

Screens and sieves must be of the proper size for peas. Punched steel screens are preferable to wire screens, as green weeds or vines have a greater tendency to hang up in wire screens.

Growers should contact their local implement dealer regarding the proper sieve and screen equipment for their combines, also making sure that they have the necessary pulley or chain and sprocket equipment for securing the required cylinder speed.