

Cow Peas and Soy Beans for Forage for Grain and for Soil Improvement

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PURDUE UNIVERSITY AGRICULTURAL EXTENSION



A Fine Field of Soy Beans on the Purdue Farm.

Every farmer who feeds live stock should become acquainted with the soy bean and cow pea, as often one or the other might be used to good advantage. Both are leguminous plants rich in protein and make excellent crops for supplementing carbonaceous feeding stuffs, such as corn. Being annual plants of rapid growth, they fit easily into a variety of rotations and may often be used as emergency crops where few other things would fit in.

Both crops are excellent soil improvers, as they gather large quantities of nitrogen from the air and have an especially beneficial effect upon the physical condition of heavy soils, making them loose and mellow. As green manuring crops for improving run down soils, they are unexcelled, since they will add large quantities of nitrogen and several tons of organic matter to the soil, besides improving its physical condition and making other plant food more available to succeeding crops. Both, and especially the cow pea, may be used to good advantage to take the place of clover in the rotation when the latter fails. The cow pea will make excellent hay to take the place of clover, while if hay is not needed, the soy bean may be used as a grain crop.

As cover crops, both may be used to good advantage. When sown after wheat or oats harvest, with fair moisture conditions, they will yield from ten to fifteen tons of green matter per acre, containing from fifteen to twenty

dollars' worth of nitrogen, which may be turned under in fall or spring for the succeeding crop.

On fertile soils, the cow pea, sown in May, will easily produce from two to three tons of excellent hay per acre, having a feeding value fully one-half greater than clover hay. Under similar conditions, the soy bean will readily yield 20 bushels of grain per acre, containing about thirty per cent. of digestible protein, which is excellent for mixing with corn to improve the quality of the ration, especially for hog feeding.

As a general rule, the best time to sow cow peas and soy beans is after corn planting is finished and the soil has become thoroughly warm. They should be sown in drills and cultivated like corn until the soy bean blooms and the cow pea begins to vine. The rows should be 32 inches apart for the soy bean and 24 inches apart for the cow pea, and both seeded at the rate of 25 to 30 pounds of seed per acre. Seeding may be done with a wheat drill set at two bushels per acre on the wheat scale, with the holes not needed stopped up. Thick seeding is detrimental to seed production. For hay production, on mellow soil free of weeds, the cow pea may be sown broadcast at the rate of a bushel to a bushel and a half per acre to secure the best results.

The cow pea is usually best for hay, while for grain the soy bean will usually be most profitable.

SPRAYING THE FARM ORCHARD

By PROF. M. W. RICHARDS
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Purdue University Agricultural Extension

In the past the farm orchard has been an important feature in the commercial apple output of the state. Today the majority of the apples sold on the market are produced in large commercial orchards. The reason for this change can be attributed to the increase of insect and fungus pests and to the neglect of the farmer in caring for his orchard. The production of fruit fit for either market or home use from this time on, will depend largely on intelligent spraying.

The Outfit. No thorough job of spraying can be done without a satisfactory outfit. A good outfit for the average home orchard should consist of a barrel pump, 25 or 30 feet of good hose, and eight to ten-foot extension rod and a

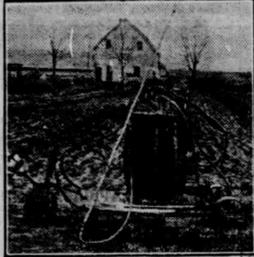


Fig. 1.—Home Spraying Outfit. Pump is Mounted in the Barrel and is Hauled About on the Stone Boat. Note the Long Lead of Hose and Extension Rod. Nozzle of the Large Circular Type Producing Spray of Large Volume and Misty Character.

nozzle. The pump and the nozzle are the vital parts of the outfit. A pump, to be satisfactory, should be capable of developing at least 85 pounds' pressure; it should possess a good agitator and a large air chamber; the valves should be easily accessible and should be protected by a strainer. A pump which answers these requirements will be a good one, regardless of who manufactures it. The main points to be considered in the nozzle are that, it should be light and compact; it should produce a mist rather than a sprinkle; and it should not drip. With such an outfit mounted on a sled or stone boat (Fig. 1), the average farm orchard can be well taken care of.

Spray Solutions. The materials which are applied to the trees vary with the pest to be controlled. Scale is controlled by spraying when the trees are dormant. The time for this is now past. In the summer, pests which infest the fruit and attack the foliage are the ones to be contended with. Such pests fall under two classes—chewing insects and fungus diseases. These enemies may be overcome at the same time by the use of a combined insecticide and fungicide. The materials most used at present are dilute lime-sulphur or Bordeaux mixture for the fungus troubles and arsenate of lead for the chewing insects.

Lime-sulphur can either be made at home or purchased as a commercial mixture. For small orchards of 100 trees or less, it is advisable to use the commercial solution as it is more convenient than the home-made mixture and almost as cheap. Arsenate of lead is usually bought already prepared. It comes in the form



Fig. 2.—Proper Time for First Spraying. Apples Should Be Sprayed Just After Leaf Buds Open as a Preventive Against Scabby Fruit.

of a heavy paste (or sometimes as a powder) and is used at the rate of two pounds of arsenate to every 50 gallons of spray material. The lime-sulphur is diluted at the rate of 1½ gallons of commercial mixture to 50 gallons of water. The arsenate is insoluble and must be thoroughly worked up in a small amount of water to the consistency of cream before it is added to the lime-sulphur or Bor-

deaux. This combination of lime-sulphur and arsenate of lead will control the majority of the fungus diseases and all of the chewing insects which infest the fruit and leaves during the summer season.

Time of Application. In order to insure a crop of perfect fruit, the spraying operations should be started early so that the poison will be on the trees before the pests arrive. The first spray should be applied just after the leaves come out but before the blossoms open (Fig. 2). This is the most important spraying for the apple scab and should be carefully done. The second application is made just after the petals fall (Fig. 3) while the calyx lobes are still wide open so that the calyx tube may be filled full of the poison. This is where the majority of the apple worms enter the fruit and great care should be exercised to fill each blossom with spray material. The third application is made two or three weeks after the second with the same materials and the fourth about the last week of June. This spraying may be omitted on the early apples as it is applied for the second brood of the codling moth. If these four applications of the lime-sulphur-arsenate of lead mixture are thoroughly applied at the proper times, the farm orchards of today will produce better fruit than ever before.

Cost of Spraying. A good, reliable spray outfit suitable for the home orchard can be purchased for from \$15.00 to \$25.00. It has been demonstrated that the cost of material, time and interest of money invested in outfit does not come to more than 25¢ per tree for



Fig. 3.—Apple Cluster Showing Apples at Correct Stage for Second or Apple Worm Spraying. Young Fruit Standing Up With Calyx Lobes Wide Open Ready to Receive Maximum Dose of Poison.

the season's spraying. As a result of this investment of 25¢, the amount of marketable fruit is increased from 85 to 95 per cent. When the general farmer cares for his orchard as he cares for his other crops, he almost invariably finds that the orchard is not only the most profitable acre on the farm, but that winter finds his cellar full of fruit, as it used to be before the advent of the codling moth and the apple scab.

Cherry Types. Cherries are divided into two distinct types, both as to tree and as to fruit. We may safely treat them as the sweets and the sour. The tree of the sweets is habituated to a compact, erect growth, somewhat subject to disease and early mortality. The tree of the sour is low headed and spreading. Certain varieties of this sort are good bearers and stay in business from twenty to thirty years. Sweets are much sought after by birds, as well as by people, with a result that much of the fruit has been claimed by bills presented, collecting promptly in spite of protest. Sweets are not generally cultivated in large blocks in the Mississippi valley. They are confined to door yards and by places about the home, while the sour are raised to some extent commercially in New Jersey, New York, Pennsylvania, Michigan, Ohio, Indiana, Kansas and Nebraska.

Sweet Corn for Home Use. I have been planting sweet corn for several years with a one-horse corn planter, dropping one grain every 12 inches asunder in the row and the rows three feet apart. I think I can raise better and larger corn than by planting three or four grains by hand at a single place in rows the same distance apart, says a writer in an exchange. As soon as the land is ready I use a weeder until it just as I do on potatoes. This is much better than a cultivator at first, as it keeps the ground finer and holds moisture better and does not disturb the roots as much as the cultivator does. For a first planting I use some very early kind and then follow this with several plantings of late varieties about two weeks apart. In this way I succeed in having sweet corn late in the season and also have abundance for canning and drying for the home table.

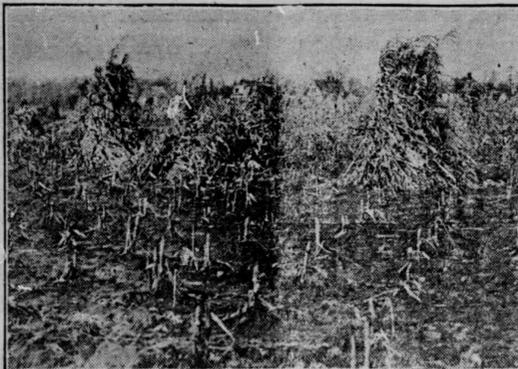
Early Pigs Best. I like to have my sows farrow in March and April. If the weather is good, the pigs can be turned into the pasture during the day when they are two weeks old, says a writer in an exchange. Two or three ears of corn daily and plenty of skim milk will make the sows give a good flow of milk, and the pigs will grow rapidly. Place some early corn and skim milk where the pigs can get it through a creep, and by the time they are four weeks old they will eat and drink.

Arkansas Black Walnuts. Arkansas black walnuts and red oak acorns will be used to replant the burned forest area of the Pacific northwest.

Farm Weeds and Other Pests

By G. M. FEISE

PURDUE UNIVERSITY AGRICULTURAL EXTENSION DEPT.



The Weed Problem Solved—A Clean Field—Intelligence, Watchfulness, Industry and Co-operation Will Keep Fields as Free of Weeds as This One Is.

The farmer has always had crop-reducing pests of one kind or another to contend with on the farm, but he has never had a better opportunity than he has now of equipping himself to successfully contend with and control the weed, insect and fungus enemies that work against his success and prosperity. When one thinks of high-priced land, low average yields of crops, and of the various disadvantages connected with disposing of farm products, it is easy to see that it never was more necessary than it is now, to get the upper hand of these pests, subdue them, eradicate them if possible, or if permanent eradication is impossible, then thoroughly control them so as to reduce their ravages to a minimum. A fundamental business principle is to prevent waste, stop leakages and to beware of misappropriation and embezzlement of resources. Farm pests occasion serious leakage, waste and shrinkage in output.

Among the very worst of farm pests are weeds. It is said that not one farmer in 50 can give the commonly accepted name, to say nothing of the habits, of 20 of our common weeds. Whether this be so or not, weeds are increasing at an alarming rate in this state. Indiana farmers are losing hundreds of thousands of dollars every year because of failure to give due at-

tention to the weed problem as it confronts us today. There are at least six indictments against weeds charging them with being robbers in a very distinct and definite sense. All these have been proven true:

1. They rob crops of plant food.
2. They rob crops of moisture.
3. They choke out desired crops.
4. They make every farm operation more expensive.
5. Farm machinery wears out quicker on a weedy farm.
6. A weedy carelessly looked after property is unsightly and repulsive.
7. Weeds reduce crop yields as much as 50 or 60 per cent. in many cases.

It has been demonstrated time and again that much of the loss occasioned by weeds is avoidable. Irregular, ill-timed, spasmodic attacks on weeds will not control them, but vigilance combined with a determination to keep them in subjection, and the persistent application of methods based on a knowledge of the habits of the weeds themselves, will control them. The necessary information concerning weeds—when they flower, when they seed, to what extent they seed, how they propagate, how they spread, their duration, their comparative noxiousness—is within the every one's reach. Watch these columns for suggestions on the control of weeds and other farm pests.

Pork Made in Cattle Feeding Lots

By PROF. D. O. THOMPSON
Animal Husbandry Department Purdue Experiment Station

PURDUE UNIVERSITY AGRICULTURAL EXTENSION



Hogs Following Steers in Purdue Experimental Feed Lots.

A great deal of pork is annually produced in the cattle-feeding lots of the state of Indiana. Many cattle feeders look largely to the pork made by the hogs following their cattle for the profit on the cattle-feeding business.

Believing that the cattle feeders of the state would like some definite information as to how much the hogs following the steers increase the profit per steer, the animal husbandry department of Purdue university experiment station has made a close study of this phase of the cattle feeding business in connection with the extensive studies of comparisons of rations for fattening steers which they have made during the past six years.

The table given below, taken from the results obtained in the Purdue steer feeding experiments of the winter 1909-1910, shows that the steers were divided into seven lots, each lot being fed a different ration. The ten steers in each of the lots 1, 2 and 3 were followed by five hogs, and were fed no corn or other grain in addition to that which passed through the steers. The ten steers in each of the next three lots were followed by ten hogs, and the 15 steers in lot seven were followed by 12 hogs. The hogs in each of the last four lots were fed in addition to the corn passed through the steers, 2,665 pounds of shelled corn; the value of which was deducted from the amount of money received for the pork produced in each of these lots.

The profit made per steer without the pork, with the pork, and the difference in profit which should be accredited to the pork, are shown in the last three columns of the table, respectively.

The results indicate something of the value of hogs in the cattle-feeding lots, and something of the great waste of feed there would be were no hogs put to follow the steers.

Table Showing the Increase in Profit on Steers Due to Pork Made by Hogs in the Feed Lots

Lot	Steers	Hogs	Profit Per Steer—		Credit to Pork
			Without Pork	With Pork	
No. 1...	10	5	\$13.02	\$22.89	\$ 9.87
No. 2...	10	5	10.12	17.44	7.32
No. 3...	10	5	14.04	21.69	7.65
No. 4...	10	10	18.09	31.15	13.06
No. 5...	10	10	12.62	21.75	9.13
No. 6...	10	10	10.49	21.36	10.87
No. 7...	15	12	21.81	30.17	8.36

*Hogs were especially high priced in 1909-1910. This pork, however, was made in lots that were not paved.

Feeding Pigs. Care should be taken not to over-feed little pigs. Weeks before weaning they will have begun to nibble at things. A little shelled corn on a clean floor is relished by them. By the time they are three weeks old the little fellows should receive as much milk as they care for. To this shorts may be added. After weaning they may receive a very definite ration.

Indian Agricultural Colleges. British India now has two agricultural colleges and the government will establish several more to prepare the natives for scientific work along that line.

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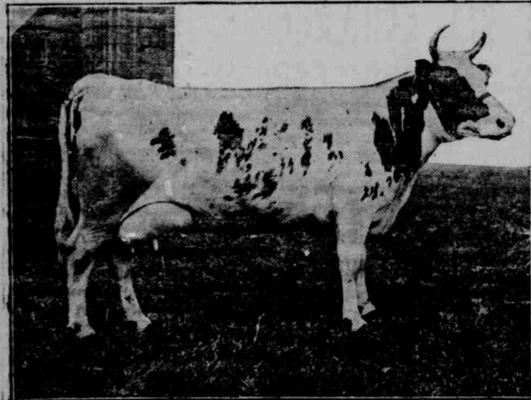
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An Excellent Ayrshire Record

By PROF. P. H. CRANE
Dairy Department Purdue Experiment Station

PURDUE UNIVERSITY AGRICULTURAL EXTENSION



Florence Melrose.

The Ayrshire cow, Florence Melrose, No. 18975, the property of Purdue Experiment station, has just completed an authentic yearly record that reflects credit upon the breed as well as the cow.

Her record is not only sufficient to place her in the Advanced Registry, but is sufficient to bring her up to near the front rank of tested Ayrshires. Her yearly test began March 31, 1910, and was completed March 30, 1911, during which time she produced 12,369.4 pounds of milk and 483.18 pounds of butter fat, her average test for the year being 3.96 per cent.

Florence Melrose shows wonderful capacity, which is provided by a long, deep body and extremely wide spring of rib. She shows a wide-awake disposition as indicated by a bright eye and stylish carriage. Her chest is deep with a broad floor assuring a strong constitution. Her back is strong and straight and rump level with a smooth tail setting. She carries a large, well-shaped udder with teats of convenient size and evenly placed. The milk veins are fairly large and tortuous, extending well forward to large milk wells.

Florence Melrose was fed largely upon silage, alfalfa hay, clover hay,

blue grass pasture, ground corn, ground oats, bran and oil meal. She is an economical producer and a good breeder, being due to freshen again this month.

Husk and Cob Meal for Horses. Corn-and-cob meal seem to be a very good feed for horses, as the presence of the cob makes the feed a trifle more bulky, yet I fear that the addition of the husks would make the feed too bulky for horses at hard work. It does seem, however, that crushed snapped corn would make an efficient and economical feed for wintering horses doing little work. The saving of the labor of husking and shelling is a factor worthy of consideration when help is scarce.

Ducks Destroy Grasshoppers. Isaac W. Coombs of West Bath, Me., who was greatly bothered by grasshoppers last year, turned 75 ducks loose on his farm and they cleaned up the hoppers completely.

Trees for Umbrella Handles. Nearly five hundred acres of ground near Paris are devoted to raising young trees of peculiar shapes for umbrella handles.

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