1902

Broom corn: how to grow and cure it

William Rufus Dodson

Follow this and additional works at: http://digitalcommons.lsu.edu/agexp

Part of the Agriculture Commons

Recommended Citation
Dodson, William Rufus, "Broom corn: how to grow and cure it" (1902). LSU Agricultural Experiment Station Reports. 250. http://digitalcommons.lsu.edu/agexp/250

This Article is brought to you for free and open access by the LSU AgCenter at LSU Digital Commons. It has been accepted for inclusion in LSU Agricultural Experiment Station Reports by an authorized administrator of LSU Digital Commons. For more information, please contact gcoste1@lsu.edu.
BULLETIN

OF THE

AGRICULTURAL EXPERIMENT STATION

OF THE

Louisiana State University and A. & M. College

WM. C. STUBBS, Ph. D., Director and State Chemist.

BROOM CORN—“HOW TO GROW AND CURE IT.” By W. R. DODSON,
Assistant Director, State Experiment Station, Baton Rouge, La.

ISSUED BY THE LOUISIANA STATE BOARD OF AGRICULTURE AND
IMMIGRATION,
J. G. LEE, COMMISSIONER.

BATON ROUGE, LA
PRINTED AT THE TRUTH BOOK AND JOB OFFICE.
1902.
Louisiana State University
and A. & M. College.

LOUISIANA STATE BOARD OF AGRICULTURE AND IMMIGRATION.

EX-OFFICIO.
GOVERNOR W. W. HEARD, President.
WILLIAM GARRIG, Vice-President Board Supervisors.
J. G. LEE, Commissioner of Agriculture and Immigration.
THOMAS D. BOYD, President State University.
WILLIAM C. STUBBS, Director State Experiment Stations.

MEMBERS.
JOHN DYMOND, Belair, La.
A. V. EASTMAN, Lake Charles, La.
E. T. SELLERS, Walnut Lane, La.

JUDGE EMILE ROST, St. Rose, La.
CHAS. SCHULER, Keachie, La.
H. P. MCCLENDON, Amite City, La.

STATION STAFF.
WM. C. STUBBS, Ph. D., Director.
R. E. BLOUIN, M. S., Assistant Director, Audubon Park, New Orleans, La.
W. R. DODSON, A. B., B. S., Assistant Director, Botanist and Bacteriologist, Baton Rouge, La.
D. N. BARROW, B. S., Assistant Director, Calhoun, La.
M. BIRD, M. S., Chemist, Calhoun, La.
S. BAUM, B. S., Assistant Chemist, Audubon Park, New Orleans, La.
C. E. COATES, Ph. D., Chemist, Baton Rouge, La.
G. W. AGEE, B. S., Assistant Chemist, Calhoun, La.
D. D. BOYD, Jr., B. S., Assistant Chemist, Calhoun, La.
J. PACHECO, Assistant Geologist, Audubon Park, New Orleans, La.
F. H. BURNETTE, Horticulturist, Baton Rouge, La.
GEORGE CHIQUELIN, Chemist and Sugar Maker, Audubon Park, New Orleans, La.
WM. D. CLAYTON, M. S., Farm Manager, Audubon Park, New Orleans, La.
B. H. ATKINSON, Farm Manager, Baton Rouge, La.
W. R. GOYSE, B. S., Farm Manager, Calhoun, La.
E. J. WATSON, Horticulturist, Calhoun, La.
W. H. ANDERS, Dairymen and Poultryman, Calhoun, La.
S. M. BUMPAISS, Tobacco, Calhoun, La.
J. K. McHUGH, Secretary and Stenographer, Audubon Park, New Orleans, La.
H. SKOLFIELD, Treasurer, Baton Rouge, La.

The Bulletins and Reports will be sent free of charge to all farmers, by applying to Commissioner of Agriculture, Baton Rouge, La., or to the Director of the Station, Audubon Park, New Orleans, La.
LOUISIANA STATE UNIVERSITY AND AGRICULTURAL
AND MECHANICAL COLLEGE,
Office of Experiment Stations,
Baton Rouge, La.

Major J. G. Lee, Commissioner of Agriculture and Immigration,
Baton Rouge, La.:

DEAR SIR—The great demand for information in regard to
"broom corn," necessitates a bulletin on this subject. Experiments
at all three stations have proven that this crop can be successfully
grown all over the State. Brooms made from the straw grown upon
the grounds of the State Experiment Station, Baton Rouge, La.,
have been exhibited at the Pan-American Exposition at Buffalo, N.
Y., and South Carolina and West India Exposition at Charleston,
S. C., and are greatly admired. It is believed that the information
given herein by Prof. W. R. Dodson, Assistant Director of the State
Experiment Station at Baton Rouge, will enable our farmers to
grow successfully this now highly remunerative crop.

Respectfully submitted,

W. M. C. STUBBS, DIRECTOR.
BROOM CORN
(Sorghum vulg. re.)

Until comparatively recent years, the brooms of European countries were made mainly from the tough, slender, elastic branches of a few species of shrubs. A bundle of such branches from a shrub called “broom” used for sweeping, received the name of this shrub. The name therefore indicated the material of which the article was made, and not the purpose for which it was designed. The fact, however, was eventually lost sight of, and the word broom came to mean what it does now. When the sorghum was used as a substitute for the woody twigs of shrubs, it was designated as broom corn, possibly to distinguish it from the broom shrub, as well as to designate the use to which this new corn-like plant was put.

We have no record of when the sorghum was first used for making brooms. There is no good evidence that it is of ancient origin. It was introduced into the United States during colonial times. There is a legend that Franklin was examining, as a curiosity, a broom belonging to a lady in Philadelphia, and discovered a seed on one of the straws. He took the seed and planted it, and thus started the growth of broom corn in this country.

Whether this be true or not, it shows that the broom corn was not a common article in Franklin’s time. Inasmuch as it is a plant that responds to selection for variations, and European countries now cultivating broom corn are using American varieties, and since broom corn culture and manufacture have reached a higher development in the United States than in any other country, we must assume that it has been primarily developed in the United States to its present condition and place of importance.

In 1791 it was cultivated in the gardens of the United Society of Stokers, at Watervliet, N. Y. It is said that this community manufactured a few brooms in 1798 and put them on the market for 50 cents each. They attracted considerable attention and the development and expansion of the industry dates from this period.
The commercial side of the industry has grown with the increased facilities for transportation.

It was the old custom for each family on the farm to raise enough broom corn to supply the needs of the household with homemade brooms, and possibly some to help supply the local market. This custom still prevails in localities remote from steamboat and railroad transportation facilities, but is rapidly disappearing.

Nearly all the brooms are now made by the factories, and broom corn growing has become a specialty, sometimes several hundred acres belonging to a single individual being devoted to this crop. With this specialization have come improvements in methods of handling so as to give a more desirable straw. Specialization also brings concentration into fewer localities. The old-time method of handling the straw which gave a product good enough for the home use is not good enough to command a high price at the broom factories, and when the product is grown for the market one must learn the improved methods of cultivating and curing, so as to produce what the market demands.

**CLIMATE AND SOIL.**

Wherever Indian corn can be grown successfully broom corn will grow also. It is cultivated most extensively in the Middle West of the United States. Illinois produces over one-third of the total crop of this country, Kansas produces nearly one-third, and Nebraska one-sixth. Missouri and New York are the only other States producing a large quantity. Tennessee and Virginia are the only Southern States giving any considerable attention to broom corn.

Localities where dry weather prevails during the harvesting periods, are most desirable. Rains during the harvest not only may cause the straw to be crooked, but interfere with obtaining the desired color of straw in curing. On the other hand, plenty of moisture in the soil during the development of the plant is desirable. The broom corn, being a grass, reaches its maximum growth when plenty of water is available. Soils with an excess of sand without humus are not suitable for the best results, because they dry out too quickly. Broom corn should not be planted on poor soil. A rich, well drained, gravelly or sandy loam, with plenty of humus will give the best results.
FERTILIZERS FOR BROOM CORN.

Well decomposed stable manure additioned with acid phosphate at the rate of 200 pounds per acre, is one of the best fertilizers for broom corn. They may be applied together or separately, in the drill or broadcast. If applied in the drill it should be thoroughly incorporated with the soil by running a shovel or large scouter through the furrow in which the fertilizer has been applied, before planting the seed. In default of stable manure, a mixture of two to three parts of cotton seed meal and one part of acid phosphate, may be successfully used. Of this mixture 300 pounds to 500 pounds may be applied per acre. See that it is well incorporated with the soil before planting the seed.

The character of the soil, however, may determine with this crop, as with others, the fertilizer to be used. If the soil be deficient in vegetable matter (humus), the larger quantity of cotton seed meal given in above mixtures should be used. If there is a goodly amount of humus the smaller quantity may subserve the wants of the plant. Only in rare instances upon very sandy soils, is potash believed to be necessary in Louisiana.

It is important to give the young seedlings a vigorous start to get them in a condition as soon as possible where cultivation can be performed without danger of covering the young plants. Broom corn naturally grows slowly for some time (until about three inches high) and weeds are apt to make hand-hoeing necessary before the plants are large enough to be properly cultivated by other implements.

VARIETIES.

The dwarf broom corn grows only to a height of three or four feet, having a brush too short for making long brooms. The brush, however, is of good quality and is used for making wisp brooms, cheap brushes, etc. It meets a demand not supplied by the larger varieties. The cultivation of the dwarf varieties is not extensive, and goes to a special trade. As a rule, the small broom factories do not work it at all.

It is difficult to harvest on account of the top leaf partly sheathing the brush, and with each brush this leaf has to be pulled off by hand. Sometimes it is harvested by giving the brush a hard jerk
which breaks it from the stalk at the top node and the brush is free from the leaf. This method of harvesting is more laborious and slower than harvesting the larger varieties, which are cut with a knife some eight inches below the base of the brush and are free of the top blade.

Of the large varieties, those bearing the name "evergreen" are best, many of them are scarcely distinguishable, such as "Evergreen," "Long-Brush Evergreen," "Missouri Evergreen," "Tennessee Evergreen," etc. These varieties are the most productive and most extensively cultivated. They grow from ten to fifteen feet high, and produce a good brush of long, tough, straight straws, which retain a green color when properly dried.

The California Golden Long Brush is now advertised by seedsmen as being a very desirable variety.

The Mohawk is an early variety. The brush turns red in drying, but it is desired by some on account of its light weight. The "Shaker" and the "Early York" are said to be very similar to the Mohawk.

Where a large crop is cultivated it is sometimes desirable to have more than one variety, so as to have them ripen at different times, and prolong the harvesting season, but this can generally be managed satisfactorily by prolonging the planting season.

**BROOM CORN (Sorghum vulgare) BOTANICALLY CONSIDERED.**

Broom corn belongs to the group of reed-like grasses, bearing the generic name of Sorghum. The species vulgare, includes the sorghums cultivated for syrup-making, and for forage, and a few cultivated for their seeds.

One of the essential characters in which broom corn differs from other sorghums of the same species is the great elongation of the branches of the panicle or head bearing the seed. These branches are also stronger, more elastic and straighter than those of any other variety of the species, and constitute the best article available for broom-making.

The seeds are produced by the flowers having both stamens and pistils, and for each of these flowers there is another bearing stamens only. There is thus an excessive number of stamens and when these are shed, as the flowering stage passes, we have what is commonly called the shedding of the flowers. The flowers on one stalk may be
fertilized by the pollen from another, and where the stalks are left to mature seed for planting, the careful cultivator will profit by removing all the deformed and imperfect heads before they shed their pollen and perpetuate their deformities in the seeds of other plants.

PLANTING AND CULTIVATING.

The soil should be well pulverized and in good mechanical condition and free from weeds, before broom corn is planted. The young plants are not very vigorous, and should have the most favorable environments the cultivator can give. Land that has been in corn and cow peas the previous year, should be in good condition for a crop of broom corn. Land that has been in oats, followed by cow peas, sown broadcast, should be in excellent condition, both mechanically and chemically, for broom corn the following year, and in especially good condition if the cow peas were allowed to decay in the field, or were pastured and the droppings of the animals allowed to remain on the soil. Velvet beans should be a most excellent preparatory crop.

The advantages of preparatory crops are these: The shade kills out the weeds and favors the normal nitrification of the soil. The roots of the plant and the shade both contribute to the improvement of the mechanical condition of the soil. The root tubercles add a good quantity of nitrogen that has been assimilated from the free nitrogen of the air. The tap-roots of the cow pea act as subsoilers, and also open channels for drainage to the substrata.

In good strong land the rows should be as close together as can be conveniently cultivated, from three to three and a half feet. Successful growers differ in their opinions as to the most favorable distance between the stalks of the row. Some advocate one stalk every three or four inches; others think three to five stalks every fifteen to eighteen inches give the best results, while still others plant in hills having seven to eight stalks every three feet in the row. In general it may be said that, other things being equal, the best results will be obtained where the land has the maximum number of stalks it can bring to maturity, and the stalks as evenly distributed as possible, so as to place all the heads under approximately the same condition as regards sunshine and shadow. These conditions would be more clearly met where the seeds have been
closely drilled. On the other hand, if hand-hoeing has to be resorted to on account of weeds and grass when the broom corn is small, closely drilled plants will be more tedious to work and the stand may be destroyed in places, and the desired uniformity lost. Again, they may be left too thick, and the straws would be too slender and weak. It is therefore very probable that the more or less indifferent cultivator will produce the best results when the seeds are planted in hills, while the more careful individual will get best results by sowing in close drills.

In this State the best results would probably be obtained by planting in drills, leaving stalks three to four inches apart.

The amount of seed required to sow an acre depends, of course, on the method of planting, varying from two quarts upward. It is well always to allow some for thinning out, after the plants are up. Allowance must be made also for imperfect seed and for those imperfectly covered. Three to four quarts per acre should give an ample stand, with enough to spare for bud worms and for thinning to regular distance. If the seed are sown by hand, the furrow should be opened with a small plow and the seed covered with a harrow, dragging about an inch or an inch and a half of dirt over them. Garden seed drills may be used for small crops. Most of the good corn-planters can be readily transformed into broom corn-planters, and so adjusted as to sow the seed as desired.

It is very important to have the soil in good condition, so the planting may be done uniformly. Anything that hinders uniform development and maturity may mar the uniformity of ripening and harvesting.

TIME OF PLANTING.

Broom corn requires a warmer soil than corn and should be planted a little later, at least after the corn planting is over. Where a large crop is planted it is desirable to prolong the planting period, so that a portion of the crop will be later in maturing, to allow the harvesting to progress uniformly and avoid excessive ripeness on the better part of the crop. However, one should try to avoid planting at a time that will bring the plants to breeding during our usual period of summer rains.
CULTIVATING.

It is well to begin the cultivation with a harrow before the broom corn is up. This will kill the young weeds and grass. The cultivation can be continued after the broom corn is up with a harrow, removing the front tooth, substituting the cultivator for the harrow as soon as possible. After the plants get to be about three inches high, they begin a vigorous growth, and should be cultivated as Indian corn, running the cultivators so as to gradually throw the dirt to the plants, and keep the surface of the soil clean of weeds and grass and in good tilth.

The plants should be thinned to the proper stand when three or four inches high. If the soil is fairly clean from weeds and grasses no hand-hoeing should be necessary. After the plants are two feet high they grow very rapidly.

TIME OF HARVESTING.

It is still a matter of doubt as to the best time to harvest broom corn. In some localities it is customary to harvest soon after the blossoms fall, or when the seeds are in the milk stage. In other sections they wait till the seed reaches the dough or semi-solid state. Such parties claim that the straw is as good, and they gain in weight, and the seeds become valuable for feed. One important point must be held in mind, however, that the straw gradually loses its green color as it ripens, and the price is materially influenced by the color of the straw. Again, over-ripe straw will not take stain as readily as the greener straw, which is a consideration, especially in making middle grade and cheap brooms.

METHOD OF HARVESTING.

The old custom of "lopping" the brushes is still practiced to some extent. The stem is bent at a sharp angle about a foot or so below the base of the brush, so as not to sever it from the stem, but leave the head hanging as nearly vertical as possible. This practice originated when it was customary to allow the seeds to mature, and the object was to keep the straws straight, as the weight of the maturing seeds bent the straws sustaining them when left upright, and
if they matured in that way, they did not make a good straight brush. Early harvesting removes very largely the necessity for "topping" the tops.

Sometimes the tops are broken in a similar manner, immediately in advance of the cutting, simply to make the heads more accessible, where the stalks are twelve to fifteen feet high. However, a modification of the method called tabling is generally practiced.

No. 1. Tabling and Cutting Broom Corn.  
(Broom Corn and Brooms, by Orange Judd Co.)

TABLING.

This operation immediately precedes the cutting, and is for the purpose of facilitating cutting the brush. It consists in bending the stalks to a right angle about two and one-half to three feet from the ground, and diagonally crossing the stalks of two rows over the middle between them, so that the stalks support one another, forming a "table," the heads of each row projecting about a foot beyond the outside of the other row. The cutter follows, severing the brush about eight inches below the base. The brushes are placed in piles on the table by the cutter and they are carried to the dry-
house. The seeds are here removed by the seeder. The seeder is a machine made especially for removing the seed from the broom corn. It consists of a single or double cylinder, with projecting steel teeth. When the cylinders are revolving rapidly, the bunches of heads are held so that the seeds are knocked off by projecting teeth. The machine may be driven by hand, horse or steam power; wind-mills are sometimes used. A very efficient seeder may be made by driving nails into a cylinder of wood twelve or fifteen inches in diameter, eighteen or twenty inches long, and supplied with a central axle, mounted like a grindstone. A gearing of cogwheels to increase the speed of the cylinder is almost essential and can be had at a very small cost. When the cylinder is rapidly revolving the brushes are held so the projecting nails or teeth will strike the brush and knock the seeds off. For working up small crops, a wooden comb, made by sawing teeth in the end of a board, may serve as a seeder. The brushes are drawn several times through this comb, or till the seeds are removed. They may also be removed by an ordinary curry comb.

The brushes now cleaned of the seeds are ready for drying. In order to retain the green color, they should be dried in the shade, as
sunshine bleaches them and turns them yellow. Professional growers use a shed with racks so arranged that the brushes can be arranged in tiers of layers with open spaces between. (See illustration.) The brushes are laid on slats in a layer four or five inches deep, with about the same amount of space between the top of one layer and the bottom of the next above it. This arrangement allows an easy circulation of the air, and a rapid curing.

In from eight to fifteen days, the brushes are dry enough to be baled and placed on the market.

It is baled by placing the brushes in a baling frame so that the heads lap in the middle, the butts projecting, one to the right, the other to the left. The frame is filled in this way, and pressed and tied tightly with No. 9 fence wire. A bale should contain about 300 pounds. It should be about three feet ten inches long, twenty-four inches wide, and thirty inches deep.
YIELD.

A good crop of broom corn should yield from 500 pounds to 800 pounds of brush per acre. The price varies from $40 to $200 per ton. Fluctuations are very great.

ROTATION.

While in Louisiana it is possible to get a second crop of broom corn of some value, we do not think it advisable. It is better to plant cow peas in the land after the broom corn is harvested. In case this cannot be done, sow oats in the early fall on the land, to be followed by cow peas or velvet beans, and then put back in broom corn the following year.

MANUFACTURE OF BROOMS.

This can be done on a large or small scale. Frequently it would be found advantageous to work up a small crop into brooms on the farm. The machinery for making brooms is inexpensive and easily managed, and many a farmer with a knowledge of the use of implements could profitably make up during our winters brooms enough to supply the local demand. There should be broom factories in every parish in the State.