

BULLETIN
OF
The Agricultural and Mechanical College
of Texas

(in cooperation with the United States Department of Agriculture)

JUNE, 1917

EXTENSION SERVICE

No. B-40

OVERCROPPING WITH PEANUTS

OR

TREATMENT OF "BLOWING SOILS"

By G. M. Garren, Agronomist, Extension Service, A. and M. College
of Texas.



JNO. P. McCULLOUGH,
Ass't County Agent,
DALLAS, TEXAS

Address

CLARENCE OUSLEY

Director of Extension Service, College Station, Texas.

[Blank Page in Original Bulletin]

OVERCROPPING WITH PEANUTS

OR

TREATMENT OF "BLOWING SOILS"

By G. M. Garren, Agronomist, Extension Service, A. and M. College
of Texas.

The loose sandy soils of West Central Texas, commonly known as "blow sands," although they are not the worst type of blow sand, present cultural problems of peculiar difficulty. These soils are not confined entirely to the semi-arid portions of the state, but are also found in many parts of East Texas. Here, however, the difficulty of handling them is not nearly so great on account of the greater rainfall and the lower velocity of the winds. Further, this problem is not entirely a Texas problem, but a problem of more or less importance in all the Southwestern states, especially the semi-arid portions of them.

In order to be able to offer some practical suggestions in handling these soils the Agronomist of the Extension Service of the A. and M. College of Texas was assigned to make an investigation of these soils. The investigation consisted of visiting "blow sand" farms for the purpose of gaining all possible information from observation and from consulting freely the men who were actually cultivating these loose sandy soils. Care was exercised to visit only those men who had a reputation for successfully handling these soils. The practices of the successful farmer and the theories of the agriculturist were harmonized and reduced to writing. Eight "blow sand" farms were visited and four other farmers were consulted without visiting their farms. R. Q. Evans, Ed T. Cox and D. F. Eaton, County Demonstration Agent for Callahan, Eastland and Comanche counties respectively were freely consulted because they had traveled all over their respective counties and consequently were in a position to offer most valuable suggestions on this subject. These counties were selected for the investigation because they are typical of the other counties in the "blow sand" region.

Consensus of Opinion

The shifting character of these soils under the almost constant wind pressure at certain seasons of the year presents a serious and com-

plicated problem in field cultivation. The difficulty of the problem is intensified when deep tilled and clean cultured crops are grown upon this type of soil and the whole crop is removed from the land when harvested. On most of these sandy soils, especially on those under consideration, the growing of cotton has been almost entirely abandoned, and the growing of peanuts has taken its place. These soils are especially adapted to the growing of peanuts but the customary methods of harvesting them removes the entire crop from the land. Such a system if persisted in for only a few years will render lands practically worthless for agricultural purposes. The shifting of the loose sands from the sandy fields to the adjacent clay-soil fields, unless checked, will soon render the latter useless. From this cause the loose sand area is constantly increasing.

The character of the soils of this region varies from a compact clay soil that is not materially affected by the winds to a loose white sand that shifts at the least agitation of the winds. Most of the intermediate grades are easily controlled. The loose white sand presents the most serious problem.

Remedies Suggested

The fundamental remedy, if the present system of farming is to be followed, is incorporating vegetable matter with the soil and leaving coarse trash on the surface of the field from the harvesting of one crop till the planting of the next. Vegetable matter, or humus, has a binding effect upon the soil particles of loose sand, and the coarse trash on the surface overcomes the "crawling" tendency of the sands when agitated by the winds. The customary method of harvesting peanuts neither puts humus in the soil nor leaves trash upon the surface. Hence it is absolutely necessary to grow peanuts in some sort of rotation upon this type of soil when the usual methods of harvesting are followed. The usual method of harvesting by lifting the vines and after curing, thrashing them and selling the nuts and hay on the market direct, is the only method when the peanut is grown as a money crop to supply the market created by the demands of the oil mills. A good annual rotation would be to grow after the peanut crop a crop of one of the grain sorghums, harvest the heads for grain and leave the stalks upon the land. A crop of June corn would serve the same purpose. A summer crop of cowpeas after a winter crop of one of the small grains, where the winter grains are grown, would prove very effective if the pea vines were left on the land. Very rarely, however, are the winter grains grown on the loose sands. The crab grass and other weeds that spring up after an early

sweet potato crop or after a melon crop, if left undisturbed on the land, will prove beneficial.

The more common and the more commendable rotation is growing the peanuts in alternate rows or in an alternate system of rows with some other crop. Cowpeas are the best crop suited to growing with peanuts in an alternate row system but June corn or one of the grain sorghums may be used. If the corn or one of the grain sorghums is used the yield of the peanuts will very likely be reduced because of the very heavy draught upon the soil moisture made by these rank-growing crops. The cowpeas will not reduce the yield of peanuts in a row, but there will be only one-half as many rows as where only peanuts are grown. Three rows of peanuts alternating with three rows of cowpeas has in practice proved the best system. A wider system leaves too much space not covered with trash and exposed to the winds; a narrower system interferes with the harvesting of the peanuts. Whatever crop is used with the peanuts the stalks or the vines must be left upon the land. Three rows of peanuts and one or two rows of Sudan grass would doubtless prove a satisfactory combination. The dense stubble of the Sudan grass will serve the same purpose as loose trash left upon the surface and also act as a wind break.

As is well known, loose trash on the surface interferes with the cultivation of peanuts. This difficulty can be largely overcome by planting the peanuts on the level and cultivating them the first time with the sliding cultivator, or "go-devil." The action of this implement tends to arrange the trash parallel to the row in such a position that it will not interfere with the young peanut vines in subsequent cultivations with other and different implements.

The best method of harvesting the peanuts for hog raisers is to allow the hogs to do the harvesting. Other crops in alternate rows to conserve the land will be unnecessary if this method of harvesting is adopted. The hogs eat the peas and a small portion of the tops, leaving the roots in the ground and the stems on the surface. The temptation would be to turn horses or cattle on the field to graze off the tops. This can be done with safety to only a limited extent. The stems of the vines must be left on the land.

Liberal applications of stable manure, where available, will prove very effective if judiciously applied. Successful farming on these soils will require all burning of stalks to be discontinued.

But little can be accomplished by the use of winter cover crops

on account of the very scant rainfall during the winter season. Rye can perhaps be utilized for this purpose in a limited way where the lands are fertile or where stable manure is used, provided it is sown early in the fall so that it will become well rotted before winter begins and growth is checked.

Bermuda grass will thrive upon these lands and produce more pasturage than any other tame grass that can be grown on them. Hog raisers and all other farmers for that matter, need permanent pastures, and Bermuda grass is the best grass for permanent pastures that will grow in that region. It is at the same time both a sand binder and a permanent pasture grass. There are, however, three objections to adopting this effective and profitable method of controlling "blow sand." First, many of these soils appear to be too poor to grow Bermuda grass under semi-arid conditions rank enough to bind sand. Second, in many instances the whole farm consists of "blow sand." No farmer cares to set his whole farm to permanent pasture. Third, there exists an unyielding prejudice against having Bermuda grass on the farm for any purpose, for fear it will spread to other parts of the farm and become a pest in cultivated fields.

None of the rules for deep fall and early winter plowing apply to the "blow sands." They must be left undisturbed from the harvesting of one crop to the planting of the next. Then they should be prepared and planted immediately. Preparation should be postponed till the strong winds of the spring season cease, usually from the first to the middle of May. Prepare by the bedding method and run the furrows at right angle to the direction of the prevailing winds. Here is where the middle buster and lister has its place on the farm. Never harrow. Leave the surface as rough as possible. Plow as soon after a rain as possible. The puddling of the sand leaves the soil particles in granular form and this granular form materially aids in overcoming the shifting tendency of the sands. The soil does not blow so badly as if left undisturbed. Puddling does not have the bad effect upon soils of this type that it does upon the stiffer clay types. Plant only crops that can be grown during the summer season, like peanuts, the grain sorghums, sweet potatoes, cowpeas, and June corn. These sands are far more drouth resistant than the stiffer types of soil. They absorb the rains more readily and the shifting sands form a natural dust mulch.

In many places the sand is only four to six inches. Plowing these lands sufficiently deep to mix the clay of the subsoil with the sand effectually destroys the shifting character of the sands. This remedy is,

however, of only limited application. The sand is in pockets in many instances. It will be six inches deep for quite a distance and then a streak will appear that from a superficial observation is six feet deep.

Two Concrete Examples

Two striking illustrations of successful farming on "blow sands" were observed in this investigation.

The first was the farm of Mr. C. E. Brennan and his story is vouched for by his neighbors. Four years ago he abandoned cotton for "peanuts and pigs." He has one field of 65 acres of the worst kind of "blow sand." The first year only a part of this field was cultivated in peanuts. The entire field has been in peanuts the three succeeding years. Last year his profits from the hogs grazed on the peanuts in this field amounted to \$1100. He also has 70 hogs of various sizes and ages left over from last season's litters to stock the farm for the coming season. The hogs sold were partially fed on crops that were grown the preceding season. The cost of this extra feed was balanced against the 70 hogs saved to stock the farm for another year. At the beginning of the change to "peanuts and pigs" he was in debt for his farm of 80 acres. He now owns 240 acres and owes less on it than he did on the 80 acres at the beginning. He always hogs off his peanuts. His sands, he claims, blow less now than at the beginning. It was a fact of observation that at this time they had blown less than any other sands in that immediate vicinity. He emphasizes the fact that after the hogs have finished their grazing the vines must be left to save the land for future crops.

The second was the farm of Mr. J. E. Dunn. His story as told by his neighbors, not by himself, is that 10 years ago he settled on his present homestead, then an abandoned "blow sand" farm. During these 10 years he has applied to a greater portion of his farm a total of 10 tons of stable manure per acre. This manure was hauled out from the stables in Comanche and cost little or nothing save the hauling. He is now rated one of the progressive and successful farmers of his county. His farm does not "blow" at all. A field that had been cultivated in corn the past season showed no signs of "blowing," while an adjoining field, just a fence between them, was literally "blown away." Stable manure did it. It will make any farmer progressive and successful who uses it with intelligence.