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PROPERTY
OF
D. S. CHAMBLEE

CROP ROTATIONS

FOR THE

COASTAL PLAIN

OF

NORTH CAROLINA



NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING

AND

U. S. DEPARTMENT OF AGRICULTURE, CO-OPERATING

N. C. AGRICULTURAL EXTENSION SERVICE

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Crop Rotations For The Coastal Plain of North Carolina

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During the past several years many farms in the Coastal Plain section have been greatly improved by the use of well planned crop rotations. There is also an abundance of experimental proof that such conditions as soil, season, fertilization, and cultivation being equal, better yields can be obtained with a good crop rotation than with a poor crop rotation, or with the continuous growing of a single crop.

ADVANTAGES OF A CROP ROTATION

More crops will be turned under for green manure. This means the soil will contain more organic matter. The organic matter will make more moisture available to crops in dry years, will help get rid of excess moisture in wet years, will check erosion of hilly and sloping lands, and will make all lands easier to till.

If the crop turned under be a legume, it will add to the soil large quantities of nitrogen from the air. This nitrogen will be available to crops following the legume. Less commercial nitrogen will have to be bought, so that the fertilizer bill can be considerably reduced.

Plant food in the soil can be handled to better advantage. A good supply of organic matter in the soil increases the effect of commercial fertilizers upon growing crops. Since all crops do not draw on the different sorts of plant food in the same proportion, a crop that is heavy feeder on one kind can, and should be, followed by one that feeds lightly on that kind of plant food. Corn, a heavy feeder on soil nitrogen, may well be followed by soybeans, which get most of their nitrogen from the air. By alternating deep-rooted crops, such as cowpeas, with shallow-rooted crops, such as oats, plant food may be taken from different depths in the soil. Then some crops, like corn, have spreading roots, and can draw from a considerable space around the plant; while others, like cotton and tobacco, can feed for only a short distance from the main tap root.

Where lime is used it can be applied at the point in the rotation where it will do the greatest good to the crop that needs it most. Then there will be enough lime left for the other crops. This also holds true of stable manure.

Weeds are kept under better control. Some weeds are worse in cultivated crops, others in broadcast or sod crops, and by alternating these classes of crops all weeds are more easily managed.

Many plant diseases and harmful insects will be controlled. While this does not apply to all pests, the practice of crop rotation is well worthwhile from the standpoint of disease and insect control alone.

With a variety of crops, labor is more evenly distributed through the year. Some fields are plowed in the spring, others in the fall or winter. Crops are planted and harvested at different times. All this will enable one man to handle more acres than if most of the farm were planted to a single crop.

The general management of the farm is made easier. The small fields and patches seen on many farms can be consolidated into large fields. This will make all field work easier. The land is kept at work nearly all the time, instead of being allowed to loaf half the year. Loafing land represents a big investment that is bringing no returns. The farmer knows well in advance what crops he is going to plant, and where. He also knows his seed and fertilizer requirements ahead of time and can make his plans accordingly.

Lastly, soil fertility can be kept up under a tenant system of farming. Most tenants will naturally neglect soil improvement if left alone. But if they are required to follow the right sort of rotation the soil will be built up.

REQUIREMENTS OF A GOOD CROP ROTATION

A good rotation must take care of and improve the soil. If it fails to do this it fails to meet the chief requirements of successful farming.

It must produce enough corn and roughage for the livestock on the farm, and such other food and feedstuffs as can be grown economically. The acreage left after satisfying the two above requirements is to be planted to one or more money crops (preferably more than one).

The rotation must be so planned that there is some return from each acre every year in the form of feed or money crops, in addition to the green manure crops. Only crops that are adapted to the soil and climate should be included in the rotation.

The order of crops must so be arranged that there will be plenty of time to harvest each crop before the time for planting the crop which is to follow it. The arrangement must also be such that crops like tobacco and sweet potatoes, whose quality is poor when grown with too much nitrogen, come at the point in the rotation where the soil's fertility is lowest.

The acreage and proportion of different crops must be so adjusted that the labor available can handle them.

Where the land is rolling, a part of the rotation should consist of broadcast crops, such as crimson clover, vetch and small grains, and sod crops, such as lespedeza. These will help to reduce erosion. Cultivated crops should also be included, not only because of their economic importance, but also because of their value in weed control.

HOW TO PLAN A ROTATION

The main thing is to get a rotation started, for once established it is easy to follow. It sometimes looks like a hopeless undertaking to try to bring order out of the chaos prevailing on a farm where there are a dozen or more small patches instead of a few fields.

The next step is to shift from the present layout of crops to the new rotation. This may take two or three years. Make a schedule for each part of every field, from the present time until the rotation is firmly established.

Having established the rotation, stick to it. Do not break it up just to take a chance on some crop that was high in price the previous year. Most of the rotations recommended in this circular allow enough leeway in this respect.

If a crop fails, plant some substitute crop, and get the field back to its regular schedule as soon as possible. For instance, soybeans or cowpeas may be used as a substitute when the stand of lespedeza is not worth leaving.

SAVE LEGUME AND COVER CROP SEED

The expense of soil improvement crops can be greatly reduced by arranging to save seed of crimson clover, vetch, lespedeza, rye, oats, soybeans, cowpeas, and velvet beans at home. An acre or two of these crops, if allowed to mature, will make more than enough seed for the average farm.

Cutting and threshing is a good method for clover, vetch,

Korean lespedeza, rye, oats, and soybeans; handpicking for cowpeas and velvet beans; a seed plan for lespedeza; and the soybean harvester for soybeans.

On the following pages are given some rotations suitable for the Coastal Plain section. Most of these rotations are in actual use in North Carolina. It should be remembered that these rotations can be modified, or other rotations planned, to suit special needs.

ROTATIONS FOR THE COASTAL PLAIN

1. (4 YEARS)

First year —Corn (for grain) with soybeans (for seed or grazing). All vines to be turned under.

Second year—Small grain (for grain or hay) followed by lespedeza (for hay or grazing) or soybeans for hay, seed or grazing.

Third year —Cotton.
Abruzzi rye in fall (for grazing and turning under).

Fourth year—Cotton.
Vetch, crimson clover or Austrian winter peas in fall (for turning under).

If desired, one year of cotton may be omitted, leaving a three-year rotation.

2. (3 YEARS)

First year —Corn (for grain) with soybeans (for seed and grazing), or velvet beans (for grazing). All vines to be turned under.

Second year—Peanuts (for nuts and hay) or soybeans (for seed or hay).
Abruzzi rye in fall (for grazing and turning under).

Third year —Cotton or tobacco.
Vetch, crimson clover or Austrian winter peas in fall (for turning under).

3. (3 YEARS)

First year —Corn (for grain) with soybeans (for seed or grazing) or velvet beans (for grazing).

Second year—Cotton.

Abruzzi rye in fall (for grazing and turning under).

Third year —Peanuts (for nuts and hay) or soybeans (for seed or hay).

Abruzzi rye, vetch, crimson clover or Austrian winter peas in fall (for turning under).

4. (3 YEARS)

First year —Corn (for grain) with soybeans (for seed or grazing) or velvet beans (for grazing).

Second year—Cotton.
Abruzzi rye in fall (for grazing and turning under).

Third year —Tobacco, with cowpeas sown at last cultivation (for seed and turning under) or vetch, crimson clover, or Austrian winter peas in fall (for turning under).

5. (3 YEARS)

First year —Corn (for grain) with soybeans (for seed, grazing, and turning under).

Second year—Cotton.

Third year —Cotton.

6. (3 YEARS)

First year —Cotton.
Abruzzi rye in fall (for grazing and turning under).

Second year—Peanuts.
Oats in fall.

Third year —Oats (for grain or hay) followed by lespedeza (for seed and turning under).

7. (3 YEARS)

First year —Corn (for grain) with velvet beans (for grazing and turning under).

Second year—Corn (for grain) with soybeans (for seed, grazing and turning under).

Third year —Oats (for hay or grain) followed by lespedeza or soybeans (for hay, seed, grazing, and turning under).

8. (2 YEARS)

First year —Corn (for grain) with soybeans or velvet beans (for seed, grazing, and turning under).

Second year—Oats, lespedeza, soybeans, cowpeas, peanuts, truck crops, Irish potatoes, sweet potatoes, cotton, tobacco.

9. (2 YEARS)

First year —Tobacco, with cowpeas sown at last cultivation (for seed and turning under).

Second year—Cotton or peanuts.
Abruzzi rye in fall (for grazing and turning under).

This is a secondary rotation to be used with a feed crop rotation, such as No. 7.

10. (3 YEARS)

First year —Soybeans (for seed, all stalks and leaves turned under).

Second year—Corn.

Third year —Oats, followed by lespedeza, or cotton.

11. (3 YEARS)

First year —Corn (for grain) with soybeans (for seed, stalks and leaves turned under).

Second year—Irish potatoes, followed by soybeans (for hay or seed).

Third year —Oats followed by lespedeza, or cotton.
Austrian winter peas in fall (for turning under).

(On the following pages see farm lay-outs for rotations and schedules of crops.)

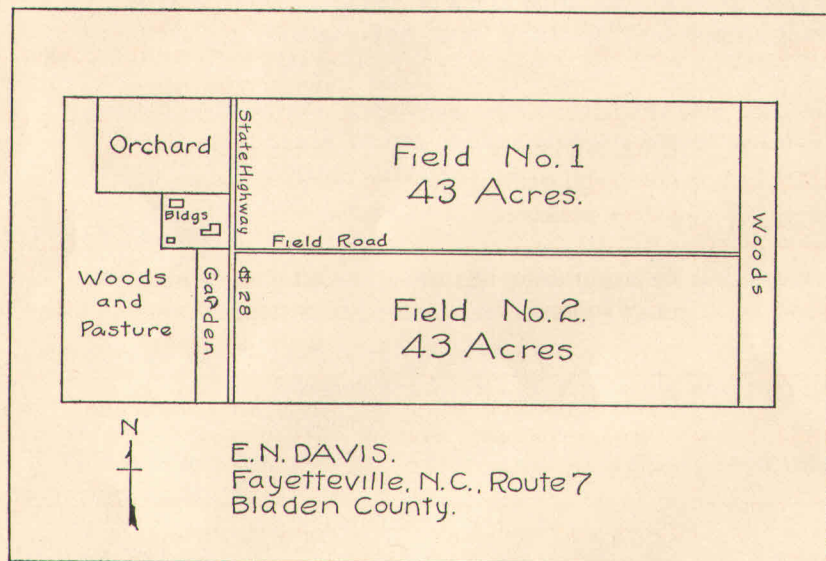


FIGURE 1.

Farm of E. N. Davis, Fayetteville, N. C., Route 7,
Bladen County.

This is a good lay-out for a two-year rotation, in which half of the land is planted in corn. This type of rotation is very popular in southeastern North Carolina.

TABLE 1

SCHEDULE OF CROPS FOR E. N. DAVIS' FARM, FAYETTEVILLE, N. C.

YEAR	FIELD NO. 1 43 Acres	FIELD NO. 2 43 Acres
1931	Corn, and soybeans or cowpeas	Oats, soybeans, cowpeas, peanuts, cotton, sweet potatoes
1932	Oats, soybeans, cowpeas, peanuts, cotton, sweet potatoes	Corn, and soybeans or cowpeas
1933	Corn, and soybeans or cowpeas	Oats, soybeans, cowpeas, peanuts, cotton, sweet potatoes
1934	Oats, soybeans, cowpeas, peanuts, cotton, sweet potatoes	Corn, and soybeans or cowpeas
1935	Corn, and soybeans or cowpeas	Oats, soybeans, cowpeas, peanuts, cotton, sweet potatoes
1936	Oats, soybeans, cowpeas, peanuts, cotton, sweet potatoes	Corn, and soybeans or cowpeas
1937	Corn, and soybeans or cowpeas	Oats, soybeans, cowpeas, peanuts, cotton, sweet potatoes

This two-year rotation is simple, but effective. The soil improving crops are soybeans and cowpeas planted in alternate rows with corn. The corn yield has doubled since 1930.

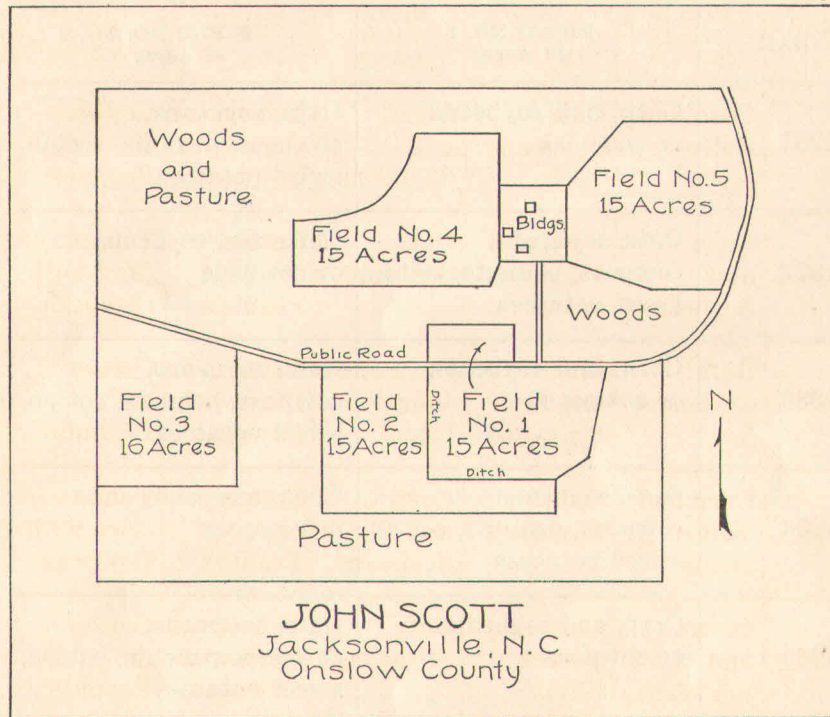


FIGURE 2

Farm of John Scott, Jacksonville, N. C.,
Onslow County.

There are two separate rotations on this farm. Only feed crops and soil-improving crops are grown on Fields 1, 2, and 3, which are low and rather poorly drained. Fields 4 and 5 are well drained and sandy, and here the rotation includes cotton, tobacco, and peanuts, all of which are adapted to this type of soil.

TABLE 2

SCHEDULE OF CROPS FOR JOHN SCOTT'S FARM, JACKSONVILLE, N. C.

YEAR	FIELD NO. 1 15 Acres	FIELD NO. 2 15 Acres	FIELD NO. 3 16 Acres	FIELD NO. 4 15 Acres	FIELD NO. 5 15 Acres
1935	Corn and Velvet beans	Oats Soybeans	Corn and Soybeans	Tobacco or Corn with Cowpeas	Cotton or Peanuts
1936	Corn and Soybeans	Corn and Velvet beans	Oats Soybeans	Cotton or Peanuts	Tobacco or Corn with Cowpeas
1937	Oats Soybeans	Corn and Soybeans	Corn and Velvet beans	Tobacco or Corn with Cowpeas	Cotton or Peanuts
1938	Corn and Velvet beans	Oats Soybeans	Corn and Soybeans	Cotton or Peanuts	Tobacco or Corn with Cowpeas
1939	Corn and Soybeans	Corn and Velvet beans	Oats Soybeans	Tobacco or Corn with Cowpeas	Cotton or Peanuts
1940	Oats Soybeans	Corn and Soybeans	Corn and Velvet beans	Cotton or Peanuts	Tobacco or Corn with Cowpeas
1941	Corn and Velvet beans	Oats Soybeans	Corn and Soybeans	Tobacco or Corn with Cowpeas	Cotton or Peanuts

On fields 1, 2, and 3, velvet beans and soybeans, grown in alternate rows with corn, are used for soil improvement. These crops may be grazed by cattle, hogs, or sheep after the corn is harvested.

On fields 4 and 5, cowpeas are sown in tobacco and corn at the last cultivation for soil improvement. The cowpeas also furnish a crop of seed. The rotation is so arranged that tobacco is always planted immediately after cotton or peanuts, which exhaust some of the fertility added to the soil by turning under the cowpeas.

These two rotations work together excellently on combined livestock and cash crop farms, especially where there is a wide variation in soil types.

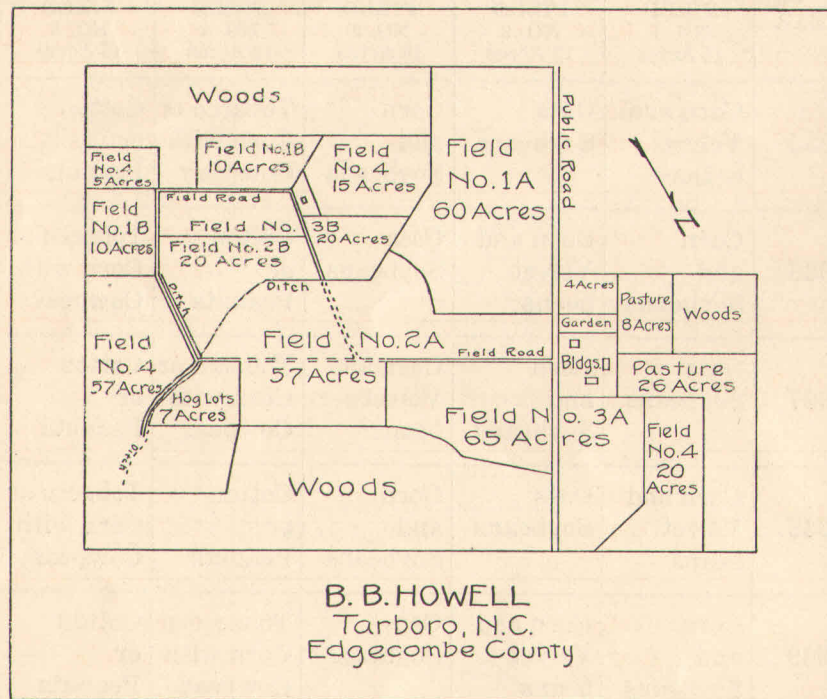


FIGURE 3

Farm of B. B. Howell, Tarboro, N. C.,
Edgecombe County.

On this farm the same rotation is practiced on two separate sets of fields. The fields marked A are cultivated by the landlord, while a tenant cultivates those marked B.

The fields marked No. 4, are lowgrounds, unsuited to crops in the regular rotation. These fields are usually planted to corn and soybeans in alternate rows.

TABLE 3

SCHEDULE OF CROPS FOR B. B. HOWELL'S FARM, TARBORO, N. C.

YEAR	FIELD NO.	FIELD NO.	FIELD NO.
	1 A—60 Acres 1 B—20 Acres	2 A—57 Acres 2 B—20 Acres	3 A—65 Acres 3 B—20 Acres
1935	Oats Lespedeza	Cotton Rye	Peanuts Oats
1936	Cotton Rye	Peanuts Oats	Oats Lespedeza
1937	Peanuts Oats	Oats Lespedeza	Cotton Rye
1938	Oats Lespedeza	Cotton Rye	Peanuts Oats
1939	Cotton Rye	Peanuts Oats	Oats Lespedeza
1940	Peanuts Oats	Oats Lespedeza	Cotton Rye
1941	Oats Lespedeza	Cotton Rye	Peanuts Oats

Lespedeza is the soil improving crop in this rotation. The seed are harvested with a combine, and all stalks and leaves are turned under. This practice has been the means of increasing the yields of both cotton and peanuts fifty percent.