

## RESULTS FROM THE DAVIE EXPERIMENTAL FARM

By H.G. Ralston in *Everglades Magazine*

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On all sides, one hears the cry that this has been a hard year for the farmer in South Florida - such a year as comes once in a decade. Two slight frosts, a long drouth, inefficient transportation facilities to the Northern markets, prices in these markets unusually low - some, or all of these misfortunes have this year caused many of the growers to suffer loss. From the marl prairies at Homestead and Detroit and Goulds, from the lowlands back of Little River and Fulford, from the "salt and pepper" lands west of Miami, the reports are practically the same.

When one turns to the Davie Experimental Farm, eight miles west of Lauderdale, in the 'Glades, one naturally expects to find the same conditions prevailing. Here a crowd of totally inexperienced men, the majority not even farmers, have put in their first crop. Even to the farmers the conditions prevailing here were entirely new.

In their favor as compared with the other growers, they had the rich muck soil of the Glades. In addition to its richness, moreover, this soil holds its moisture splendidly. This fact has been a great help, during a long dry spell. Besides this, by damming up the small ditches, they have been able to sub-irrigate, to a certain extent. Frost did not touch them last winter. Again, the fact that the experimental farm was not planted till December 15 and later, brought in most of the crops after the worst of the low prices had passed. Little shipping was done before March 1st, and the majority of the tomato shipping has been done since April 1st.

There were eleven distinct groups who cropped on the farm, composed of men from several different states. They were of many different occupations. The majority had had no training whatever in agriculture.

Those groups planted a total of a

little over twelve acres in green beans (the "refugee" or "1,000 to 1" being used practically entirely). There was one failure and one partial failure, yet the average yield per acre was 179 hampers, which is very good. To make this yield, an average of a little over half a ton of commercial fertilizer was used per acre. The expenses, except the labor of the men or group was \$241 (estimated). I believe this estimate to be very nearly correct, and it is a remarkably fine showing for green men in a bad year. The Cross Bros. made the highest net return per acre, about \$376.

There was a total of about 24 acres planted to tomatoes on the experimental farm. Although estimates show an average of 213 crates to the acre, with an average of little less than a ton of commercial fertilizer used per acre. The average new return per acre is estimated at \$217, but this may be way off, as the tomato returns had not yet begun to come in in any quantity on April 15. The reasons for the comparatively low crate yield per acre will be discussed later.

Irish potatoes show a net return (estimated) of about \$93 per acre, but the average planted is too small to base any conclusions on, and a part of the crop from this small acreage has not yet been dug.

Those who planted cucumbers claimed that they were dried out. A small patch of sugar cane was doing splendidly until the high water in October hurt it and it had to be cut down.

### COST OF MAKING CROP

The next item of interest is the cost of making the various crops. To simplify this, I give tables which cover everything essential.

### SEEDS

Refugee beans, \$5 and \$6 per bushel (1 bushel plants 1 acre). Globe tomatoes, \$4 per pound (1 pound

plants 10 acres). Maine potatoes, \$3.50 per sack or barrel (4 barrels plant 1 acre). Cucumbers, \$4 per pound (1 pound plants 3 to 4 acres.

### FERTILIZER

The average cost of fertilizer per ton, laid down on the experimental farm was \$35 to \$36.

### PICKING

Beans (if picker is paid by the hamper), 25c to 30c per hamper. Tomatoes (if picker is paid by the crate), 5c to 15c per crate. Potatoes (if picker is paid by the barrel) [no price given]. Cucumbers (if picker is paid by the crate), 5c per crate. Another way is to hire men by the day, when needed, at \$1.50 to \$1.75 per day, the man to board himself.

### CRATE MATERIAL

Cost of each bean hamper, 12 1/2c to 13c. Cost of each tomato crate, 16c (14c in car lots). Cost of each potato barrel 33c. Cost of each cucumber crate 13c.

### PACKING

Tomatoes (if contracted) 10c per crate. Beans (merely sorting out the stuff) 2c per hamper. Potatoes (merely sorting out the poor stuff) 3c per barrel. Cucumbers, 5c per crate. Truck may also be packed by the grower himself, or by the members of his family. Everyone can turn to, in picking and packing time. The various parts of the tomato crates must also be put together, after delivery at the packing house.

### HAULING CHARGES

Truck was carried from the experimental farm to Lauderdale at the following prices, which includes the hauling of the empty crates of hampers out to the farm, from Lauderdale. Cucumbers, tomatoes, beans, 5c per crate or hamper. Potatoes, 10c per barrel.

### COMMISSION CHARGES

These vary being either a per cent of the selling price, or a flat rate. The following are fair examples: Tomatoes, per crate, 10c

or ten per cent of gross selling price. Beans, per hamper, 10 percent of the gross selling price. Potatoes per barrel, 10 percent of the gross selling price. Cucumbers, per crate, 10 percent of the gross selling price.

### FREIGHT CHARGES

These vary for different markets. Rates to New York City, where practically all of the produce of the farm went, follows: Tomatoes, all rail, in car lots, 56¢ per crate. Tomatoes, all rail, in less than car lots, 69¢ per crate. Beans, cucumbers, potatoes, and in fact all vegetables, take the same rates as tomatoes, when packed in standard 50-pound crates. Potatoes, per barrel, \$1.36. Beans, by express, \$1.02 per hamper. By F.E.C.R.R. and Clyde Line the standard crate rate to New York is in car lots 48¢. Less than car lots, 51¢. Potatoes, per barrel, \$1.15.

### LABOR EMPLOYED

Labor was employed variously by the different groups on the farm. For instance, Easton et al. have had four negroes at \$1.75 per day pretty continuously. Hill et al. employed five negroes one day and six another to aid in picking. They did the rest of the work themselves, including picking and packing. McKinnie and Ackley used two or three negroes three or four days in the week, whenever necessary. The Cross Bros. employed two or three negroes for about two weeks. Branham used two negroes intermittently, as did Jones. Aunapu and Tully used no hired labor.

It is on the basis of the foregoing items of cost that the net returns have been figured. The initial expenses, such as tools, house, tent, boats, etc., have not been included. They can be made as large or as small as one pleases. The living expenses and the labor of the croppers themselves have also not been included.

### METHOD OF PACKING EMPLOYED

Several temporary packing houses were erected by the different

groups. Hill et al. had their own, under their house, which is built high along the canal bank. Easton et al. used the same plan. The others combined to erect three or four small packing houses, which were clustered about the mouth of the Davie ditch. All tomato packing was contracted for at 10¢ per crate with an experienced packer in charge. Potatoes were packed by the shipper, as were most of the beans. Some beans and the cucumbers were packed by contract. The shipper, of course, furnished the hampers or crate material.

### METHOD OF SALE OF CROP

The crops were sold practically entirely to New York commission merchants. The growers on the experiment farm had had no experience in selling their produce. For this reason they probably lost somewhat. Some of them, further, could obtain the necessary crate material (during the shortage) only on condition that they would promise to ship all of the produce packed in those crates through the man who furnished them. As this man was not much of a commission man, several lost money by being forced to ship through him.

### TRANSPORTATION

At first, those living on the experiment farm were dependent on passing or private boats for connection with Lauderdale. Of these latter there were four small launches, all of them. McKinnie and Ackley, Cross Bros., Hill et al. and Aunapu were the owners. These gentlemen when making a trip to town brought out supplies for the others, whenever there was room in their boats and free of charge. At first barges and launches from Lauderdale delivered the fertilizer at \$1.00 per ton (where it was not laid down on the farm free).

Later Captain Dodge of Lauderdale established a daily boat service to the farm. At first he charged 10 percent of the gross cost for hauling out food and supplies from Lauderdale. When shipping commenced on the farm, however, he hauled the

food and supplies free. The privately owned launches still continued their trips also, and what with passing dredge boats the growers on the farm never felt far from the outside world.

### INSECT PESTS AND PLANT DISEASES

The worst pest this year on the experimental farm was the caterpillar worm. These appeared out of a clear sky about April 13th. Immediately they infested the tomato fields, with extremely harmful results. If this pest had not appeared the average yield per acre on tomatoes would have been nearer 600 crates than 200. McKinnie and Ackley alone threw away over 2,000 crates which had been damaged by worms. The growers did their best to down this enemy. Bran and paris green, sulphur and other remedies were lavishly used. The worms were too well established for the remedies to be effective however.

Mildew and blight have attacked some of the beans. Cut worms took Cross Bros. onions. Huge grasshoppers have appeared in great numbers, the caterpillar worm also attacked the potatoes.

This need discourage no one, however. Here as elsewhere an ounce of prevention is worth a pound of cure. For each of these troubles there is a simple and cheap preventive, such as spraying with bordeaux mixture, etc. A good farmer does not wait for the appearance of plant pests, but guards against their coming beforehand. Had the growers on the farm done this, they would probably have doubled their profits with less labor than they expended fighting the trouble when it was too late.

### LIVE STOCK

About a dozen young steers, brought by Easton from Minnesota, have thrived on the young maiden cane which grows wild on the Glades. They have been fed very little else by Easton. They have grown greatly in the last four months and seem entirely healthy. There are one or two milch cows on

the farm, also Easton's property. Those have been fed, among other things, the dead bean vines, which they have relished and which have made sweet milk. At least one cow has calved. Easton also has one bull. There are no hogs, horses, or mules on the farm this year.

### CHICKENS

Dodge and Easton have over 100 beautiful chickens -- White and Brown Leghorns and Barred Plymouth Rocks. Dodge, from 75 hens, many of which are pullets, has been getting about 25 eggs a day. These he had been selling for 40c a dozen. The chickens have been cooped up in wire yards or runs, and have been fed kitchen slops and grain, I think. It is disappointing that none of our many tropical chicken foods have been tried out in this connection.

### HOMES AND DOCKS

The majority of the eleven cropping groups were situated about the mouth of the Davie ditch. Here McKinnie has built an attractive three-room bungalow. He has also built a small dock at the west side of the Davie ditch. McKinnie owns his land I may add. The other groups about the ditch who were merely granted the privilege of cropping there, to wit: Branham, Hale, Ackley Bros., Heynes, Jones et al. and Cross Bros. have been living in tents or small temporary shacks. A dock has been built by these people on the east side of the Davie ditch. Aunapu and Tully, who own their land, to the west of the farm, have a two-room house with floor and partial sides of wood.

Underneath this house, which stands high on the canal bank, is the packing house and store room. He also has a small dock. Hill et al., whose house is also on the canal bank, have a two-room home with a packing house underneath. The cost of the Hill and Aunapu houses is between \$125 and \$150 each. They built their own houses, however.

### IRRIGATION AND DRAINAGE

The farm was under from two to four feet of water last October. By December 10 it was dry enough to start seed beds upon, and to clear immediately along the canal banks. At this time only the Davie ditch was installed. I do not look for such continued high water next fall, though of course, there will be the annual flood until the main canals are finished and Lake Okeechobee lowered. A few small hand ditches were dug to the Davie ditch to drain low spots and these hand ditches served their purpose ad-

believes that it is important to keep moist the top inch or two of soil.

### METHODS OF CULTURE

Cultivation of crops has been entirely by hand, neither horses, mules nor machinery being employed (Easton plowed a small patch with his bull harnessed to the plow). As the ground settles all of the above will be used and I look for the work to be done by machinery at some time not so far distant.



Tom Hill's irrigated bean farm, Davie, 1912. (Courtesy of the Davie Historical Society).

mirably.

Since December 10th the farm has been thoroughly ditched -- a system of double ditches, emptying into the South canal, having been cut every quarter of a mile. At each opening into the canal is a sluice box. These ditches should serve to drain the farm quickly after the flood.

By draining these ditches they will further serve for sub-irrigation. The Davie ditch was thus dammed this year with good results.

Henry Hill contemplates installing a system of overhead irrigation. He

Whether careful cultivation pays on the Glades is an open question. Some hoed their crops more or less. Hill et al. never cultivated a part of their beans with splendid results. Jones, who hoed his tomatoes less, made as good a yield as those who hoed more. Moisture and fertilizer seem to count more than cultivation to judge from the results obtained on the farm.

### CONCLUSION AS TO SOIL

The muck is remarkably fertile. No one who watched the results on

marl and pine land, and compared them with the results obtained on the farm can doubt this. Properly treated, it makes a large growth, and a quick one. Thus Dodge planted a few Irish potatoes on January 7th; some of these he dug and ate on March 4th. The Cross Bros. planted Irish potatoes on March 15th and these were up and blooming on April 15th. Several people had finished picking their beans, and the vines were apparently dying. These vines later took on new life, put out a second bloom, and bore a small second crop.

All the soil cropped on the farm was virgin. The results prove it not to be sour. However, till it is worked up, it must be fertilized. Aunapu's experience proved this beyond a doubt. He planted probably 20 different varieties of truck and used no fertilizer. The seeds all came up rapidly, attained a growth of a few inches and then died down. Easton had the same experience. Potash is undoubtedly necessary to harden the plant and give it fiber, and phosphoric acid is also necessary. If ammonia is to be omitted from the fertilizer used the ammonia from the muck must be made available by applying lime, or in some other way.

After the soil has been worked up for a few years and fertilizer and cover crops added to it, little or no fertilizer will be necessary for certain crops, in all probability. However, the new man must come prepared to fertilize his land at first.

## WATER

Good, pure water has been obtained from pumps driven from 12 to 15 feet in the ground, the end of the pipe being forced a few feet into the underlying sand or rock. Branham drank the water from a hole in the muck for months, with no bad results. Hill did this also until the water became low and therefore comparatively stagnant. This is unwise, however.

## SANITATION

The inhabitants of the farm have

used outhouses, as a rule, this year. The establishment of proper sanitary conditions is most important, once the real Glade settlement begins. The garbage, the tomato culls, etc., have been thrown either onto the ground or into the canal. This is wrong and is most unfair to those nearer the coast and in Lauderdale. This waste should either be buried or burned.

## HEALTH CONDITIONS AND LIVING CONDITIONS

Health conditions have been perfect on the farm. I know of no sickness occurring there at all, with the exception of Jones, who imported a case of rheumatism, and Postier, who imported heart trouble. The people are strong looking, tanned and healthy. A winter spent in the open under a pleasant sun, with gentle breezes constantly blowing, makes for perfect health.

So does hard manual labor, which all have been doing to a greater or less extent. An occasional fish from the canal had provided a change of fare. The truck patches have provided fresh vegetables. Chickens have contributed eggs to their lucky owners. The rest of the fare has been what the purse could afford, or the taste dictate. The people have obtained their supplies from Lauderdale at a little more on an average than these would cost in the North.

If they have squabbled among themselves, let only him who has never fussed, criticize them. Gossip and friction are common to all small communities.

## SUMMER CROPPING PLANS

By May 1st the winter crops on the farm will all have been taken off and shipped.

One of the Hill boys will remain on their farm. Mr. Hill has set out 100 grapefruit trees (Marsh seedless) and ten orange trees. These trees are two years old from the bud. Young Hill will watch these trees this summer. He will also try to raise a few potatoes for seed and will probably try ut other crops also. The other Hills will go

North to return in the fall. They are all enthusiastic and have made good money over all expenses, living included.

## GENERAL CONCLUSIONS

Out of the eleven cropping groups (composed of green men, the majority of whom lacked sufficient capital) five made money; four came out even, and two lost money. For a generally bad year, this is most encouraging.

These twenty-two men, composing the eleven groups, probably represent in personnel, the future Glade settler. They are of many different callings, from several states and of at least average intelligence. Judging the future settlers from these twenty-two, the chief problems confronting them, and us, as a company can be overcome by a correctly-timed and strenuous educational process.

First the future settler, before starting for the Glades, must be taught that he must have enough working capital to cover:

1. Car fare to Miami.
2. Freight on household goods to Miami.
3. Cost of house or tent.
4. Cost of cooking outfit.
5. Cost of incidentals - pump, etc.
6. Cost of boat, if one is desired or needed.
7. Cost of farm implements, tools, sprays, etc.
8. Cost of seeds and fertilizer.
9. Cost of crate material.
10. Cost of any labor which he may desire to hire done.
11. Cost of hauling crop to railway.
12. Cost of living expenses while crop is making.

All these foregoing are expenses to be incurred before the crop is made. In addition it is imperative that the future settler have some money to tide him over, and with which to put in another crop, provided the first one fails. Not less than \$1,000 under any circumstances is needed to meet these requirements.

Judging from the croppers on the Experiment Farm this year, the future settlers will not be thus provided for. Eight out of the eleven

groups on the farm had either far too little capital or practically none. They were helped along by various people. Thousands of future settlers cannot be thus helped, and will not be. Before they are ever allowed to start for the Glades they should have the sufficient working capital idea drummed and dinned into them till they come to understand its necessity, and either provide themselves, or stay away.

Many broken purses and broken hearts, and much bitter disappointment will thus be saved the settler.

Furthermore the settler should be well satisfied if he merely "breaks even" the first season. In farming as in business, there is much to learn and much careful preparation and improvement to make and equipment to install before reaching the dividend period.

Second. On arrival here, the real education of the settler will just begin, for he knows nothing about farming conditions here, when he arrives. And it is here that our Experiment Station will play an enormous part.

The settler must learn, after arrival in South Florida:

1. What, when and how to plant.
2. How to cultivate and fertilize.
3. How to fight plant diseases and pests, and how to overcome natural drawbacks.
4. The principles of drainage and irrigation.
5. How to pick, sort and pack his crop.
6. How to market his crop.
7. That he must support his Growers' Association, financially as well as morally, in its fight for lower freight rates.
8. That he must combine with other growers to market his crop intelligently and to the best advantage, and must support Growers' Exchanges, organized honestly for this purpose.
9. That he must strive to lower his cost of production.
10. That he must diversify his crop; must plant many, and not only one kind of truck; must also plant our tropical staple crops, and fruit of all sorts

11. That he must not put all his eggs in one basket; and to this end, must round out his farming operations, raising chickens, cattle, hogs, and forage, as well as truck and fruit.

12. The care of the soil and the value of cover crops.

13. Proper sanitation; proper sewerage methods, etc.

All this, and more must the future settler learn. It looks hard, but who ever won anything worth having without hard work and application? And the reward is very great for him who succeeds.

If we can put in the best possible Experiment Station, and so teach some of these things to the future settler; further, if we, ourselves, lend our best efforts towards educating them along right lines, before they come, as well as after; if we do this, I say, then with the intelligent and hardy men coming to us from the great Northwest - with these we shall build of the Everglades an empire in very sooth, "richer than the Valley of the Nile," the envy and admiration of the civilized world.



Tar paper houses and wagons were common in early Davie. (Courtesy of the Davie Historical Society.)