About Our Cover

The South Atlantic Coast Vegetable Project: A Multistate Team Approach to Research on Alternative Farming Opportunities

The South Atlantic Coast vegetable project, officially titled "Agricultural Adjustment in the Southeast Through Alternative Cropping Systems", involves a group of horticulturists and agricultural economists working as an interdisciplinary team. This regional project directly involves three universities—the Depts. of Horticulture and Agricultural Economics at Clemson Univ., the Univ. of Georgia, and North Carolina State Univ.

History and background

In 1984, personnel in the Depts. of Horticulture and Agricultural Economics at Clemson Univ. discussed common interests in vegetable research and the possibility for obtaining grant funds. Agricultural economists and horticulturists at the Univ. of Georgia and North Carolina State Univ. were included in further discussions and participated in the development of a proposal for submission to the Special Grants program of the USDA. The proposal was initially funded in 1985.

Objectives of the project

The basic objective of the project is to analyze the feasibility of producing vegetables in the Carolinas and Georgia in a manner and scale that will provide alternatives and/or supplements to current enterprises. An advantage of the three-state area is that there are climatic differences within the region that make possible the production of vegetables over extended periods of time, a necessity in penetrating potentially profitable markets. Specifically, the objectives are: 1) Evaluate alternative markets for new and expanded production of selected horticultural crops, including international markets; 2) identify commodities that have the most potential for expansion; 3) determine the feasibility of developing production practices for competitively producing specific vegetable crops on family farms in the three-state region; and 4) develop and disseminate specific information and research results.

Commodities

The commodities being studied intensively are broccoli, carrots, cauliflower, cabbages, cucumbers, leaf lettuce, muskmelon, onions, peppers, potatoes, snap beans, spinach, and tomatoes, with other crops also being evaluated. Four cultivars of each crop were planted.

Research results

Horticulture. Plot work is being conducted at seven locations throughout the region (Fig. 1). Table 1 summarizes the

(continued on inside back cover)

Table 1. Marketable yields for 11 vegetable crops with four planting dates, in North Carolina, South Carolina, and Georgia, 1985–86.

<table>
<thead>
<tr>
<th>Crop</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bean</td>
<td>1.25</td>
<td>1.01</td>
<td>1.97</td>
<td>1.43</td>
</tr>
<tr>
<td>Broccoli</td>
<td>2.03</td>
<td>1.36</td>
<td>1.98</td>
<td>1.42</td>
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<tr>
<td>Carrot</td>
<td>1.68</td>
<td>1.77</td>
<td>1.97</td>
<td>1.39</td>
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<tr>
<td>Cauliflower</td>
<td>2.19</td>
<td>1.82</td>
<td>1.69</td>
<td>1.43</td>
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<tr>
<td>Collard</td>
<td>2.15</td>
<td>2.76</td>
<td>1.71</td>
<td>3.07</td>
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<tr>
<td>Cucumber</td>
<td>15.23</td>
<td>6.66</td>
<td>9.67</td>
<td>5.00</td>
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<tr>
<td>Leaf lettuce</td>
<td>1.34</td>
<td>3.97</td>
<td>NT</td>
<td>4.02</td>
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<tr>
<td>Muskmelon</td>
<td>9.90</td>
<td>7.86</td>
<td>8.43</td>
<td>7.44</td>
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<tr>
<td>Pepper</td>
<td>2.39</td>
<td>3.16</td>
<td>2.53</td>
<td>2.78</td>
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<tr>
<td>Potato</td>
<td>NT</td>
<td>2.81</td>
<td>NT</td>
<td>2.57</td>
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<tr>
<td>Tomato</td>
<td>12.28</td>
<td>6.58</td>
<td>9.45</td>
<td>7.04</td>
</tr>
</tbody>
</table>

*1 = earliest, 4 = latest.

*No potatoes were tested in 1985; only spring crops in 1986.
production data for 1985–86. Four planting
dates, differing by location, were used at each
site. The first and fourth are the earliest and
latest possible production dates of each sea-
son, while the second and third are regarded
as being less risky with regard to weather
factors. Exceptions were only two spring
plantings for potatoes and three plantings for
tomatoes and peppers (no late-fall planting).

Preliminary analysis of the data indicates
that all commodities have potential for pro-
duction in the South Atlantic Coast area. There
were distinct responses by each crop to the
season of production. Spring was more fa-
vorable than fall, based on the overall re-
sponse of the crops. Collards and broccoli
were less affected by climate than were leaf
lettuce and snap beans. This stability may be
due to the production system selected for each
crop. Even though these commodities can be
produced, profitability will depend on mar-
et availability.

These results have served to identify cul-
tural practices that warrant further research.
Stand establishment, stress responses, and
nutritional systems are examples of specific
areas currently being investigated.

Results from a study of fertigation and
plastic mulch on peppers and tomatoes in-
dicate yields are increased by plastic mulch.
Other findings indicate that the color of the
plastic can influence seedling establishment
and development and subsequent yields. These
impact economic returns and costs, and
therefore profitability.

Research has been initiated on the effec-
tiveness of photodegradable mulches as a way
to reduce end-of-season clean-up costs.
Studies of different fertilizer source and rate
effects on yield and quality of some crops
have been initiated. Nineteen commercial
cultivars of broccoli have been evaluated for
heat tolerance.

Agricultural economics. Preliminary mar-
ket window analysis indicates that there are
potentially favorable price windows for snap
beans, green peppers, and cabbage. Esti-
mates have been made of price flexibilities
to determine how much prices can be ex-
pected to decrease with increases in market
volumes. These estimates will be used to ad-
just average expected prices for comparison
with production costs to further analyze mar-
et windows.

Information from a survey of first handlers
of vegetables was used to develop a market
structure analysis. The results indicate that
the most important factor that increases the
probability of buying from a new supplier is
a product of uniformly high quality. The most
important negative influence is the fact that
a buyer already has established suppliers who
provide a product on a year-round basis.

Discriminant analysis was used to distin-
guish the major differences in market infra-
structure between Asia, the European
Economic Community (EEC), non-EEC Eu-
rope, and Latin America. The greatest po-
tential for the United States to increase its
export market share exists in Asia and the
EEC. About 88% of the Asian importers and
60% of EEC importers predicted increasing
levels of imports. The results also indicate
that an increased market share is contingent
on a total commitment to satisfying the de-
mands of the export market at competitive
prices.

Work has been completed on the deter-
nation of the relative competitiveness of
agronic row crops and selected vegetable
crops. The components of the quadratic pro-
graming model are demand, supply, variable
costs, risk, and land and biological con-
straints. Indications are that fresh vegetable
crops compete favorably with traditional row
crops. However, vegetable production is re-
stricted by consumer demand.

A microcomputer program, “Budget
Planner”, has been designed to assist in the
construction of crop enterprise budgets.
Budgets can be generated for any crop or
combination of crops, including those se-
quentially grown. A second software pro-
gram, “Crop Planner”, uses the information
obtained in Budget Planner to develop max-
imum farm profit production plans.

An economic engineering approach was
used to determine performance rates for vari-
ous equipment used in the production and
packing of peppers and cucumbers. The re-

results indicate there are substantial economies
associated with increases in size. It, there-
fore, appears that farmers in the tri-state area
could compete more effectively in the pro-
duction of peppers or cucumbers if they co-
operated to attain the volume of production
necessary for an economically efficient
packing facility.

Summary

The South Atlantic Coast area could have
a comparative advantage in the production of
selected vegetable crops. The high level of
management necessary for tobacco could be
applied to vegetable crops. Soils in the South
Atlantic Coast area are capable of producing
yields comparable to many primary produc-
tion areas. Irrigation equipment is readily
available. The growing season is as long as
290 days on the coast. It is possible that three
or four plantings of some vegetable crops
could be produced per year in certain lo-
cales, with most crops being produced over
5 to 8 months. There is also potential for
multiple cropping systems, including vege-
table and agronomic crops. The area has
transportation advantages to the eastern pop-
ulation centers and has seaports at Charles-
ton, S.C., Wilmington, N.C., Savannah, Ga.,
and Norfolk, Va. for the possible develop-
ment of export markets.

However, those involved with the project
are not so naïve as to believe that this effort
will result in the solution of all problems for
all farmers. Project personnel are excited about
the long-term prospects, and pleased with the
cooperative research effort that has occurred.
More than 27 faculty members and a large
number of graduate students from the three
universities have participated in the project.
The knowledge and information devel-
oped in production and management tech-
niques need to be transferred to producers
and potential buyers. The cornerstone of the
implementation phase of the project is based
on providing information. A conference for
potential buyers and producers is being
planned, with the major objective to provide
results that will enable those attending in de-
cisionmaking on entering or expanding their
involvement in the vegetable industry in the
South Atlantic Coast area. The tentative pro-
gram includes: 1) A produce show sponsored
by the departments of agriculture; 2) keynote
addresses by prominent persons in industry;
3) discussion of the project, outlining his-
tory, objectives, results, and future direc-
tion; and 4) a panel of buyers discussing
needs, problems, and industry prospects,
and reacting to the research presentations.

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