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Maine Fruit and Vegetable Industries' Attitude Toward the Creation of an Agribusiness Park

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Introduction

Maine sits in close proximity to major markets, particularly Boston and New York. Yet Maine has traditionally experienced difficulty in accessing those markets. This is at least in part due to the state's natural isolation, the agricultural industry's wide and varied geographical distribution, and the relatively small size of farms and related agribusiness firms. There is a general need to improve marketing efficiency and productivity in Maine's agricultural industry.

For the past forty years, there has been some limited discussion of creating some form of a centralized agribusiness park in the southern part of the state to serve a variety of Maine's resource-based industries. In 1991, the Maine Department of Agriculture enlisted the Wholesale Market Development Branch of the Agricultural Marketing Services, United States Department of Agriculture, to assist them in designing an agribusiness park for the state of Maine. However, no detailed information regarding the interest in such a park by various industries or the likely functions which might be viable at such a facility existed. The objective of this study is to ascertain the levels of interest in such a facility within Maine and to identify to a greater degree the potential operations for such a facility.

Procedures

Due to the wide diversity among the resource-based industries in their production, product characteristics, and marketing methods, the first task of the research was to identify the potential marketing and facilitative functions that were relevant to the selected industries. To ascertain opinions about the need for an agribusiness park and its potential functions, initial personal interviews were conducted with public and private sector representatives from most of the resource-based

industries.

To help interviewees to think outside the current scope of their business activities, each of them was given a general list of some potential market functions for a park:

1. Seasonal Farmers Market
Facilitate delivery and sale of small and intermediate lots of Maine produced products.
2. Wholesale Market - Regional
Terminal market receiving, storing, re-packing, terminal market sales, regional distribution, brokerage firms, auction, and truck brokerage
3. Wholesale Market - Limited
Similar to #2 but with some limited scope of activities
4. Freezing and Cold Storage Facilities
A central facility to freeze and hold fruit and vegetable production from Maine farmers. Much of the product to be processed at this facility could, perhaps, come from Maine farmers' excess over seasonal wholesale and retail fresh needs. Such a facility could be used for blending and freezing further processed products, such as peeled potato products during the winter.
5. Freezing and Cold Storage Facilities and Brokerage/Wholesale
Similar to #4 with addition of brokerage firms and wholesale houses which could buy or arrange transfer of ownership of goods into and out of the state (both fresh and frozen).
6. An Electronic Market Facility to Aid in the Marketing of Maine Goods
7. Centralized Truck Brokerage and Transfer Station
A central location that would facilitate transportation of Maine produce by attracting more units and using them more efficiently (could be combined with any of the above).
8. Post-Harvest, Handling, and Processing Center
A central location to facilitate some or all of the post harvest process such as sorting, cooling, grading, packing, assembling, selling, processing, etc. for a specific commodity or commodities. Such a facility might involve potatoes,

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apples, blueberries, fin-fish or shellfish, small fruits, broccoli or other vegetables.

9. Food Processing Incubator

A facility that would include space that very small or starting companies could lease. In addition, a pilot food processing plant to assist firms in testing new formulations would be included.

Based on the initial interviews, more extensive mail surveying was conducted with Potato, Wild Blueberries, Fruit and Vegetable, Christmas Tree and Wreath, and Ornamental Horticulture Industry representatives. Mailing lists of growers and marketers were provided by Maine Cooperative Extension. A survey instrument was developed and pre-tested. Two first class mailings and a certified third mailing was used. There was a 49 percent and 44 percent response rate for the Blueberry and Fruit and Vegetable Industry, respectively (Table 1). This analysis focuses on the attitudes of Maine Wild Blueberry and Fruit and Vegetable Industries toward the creation of such an agribusiness park. Respondents are considered to have interest in using and/or investing in the park if they indicated that they would use any of the potential facilities at the park and/or would be interested in being an owner/operator, investor, or cooperative member in a function at the park. A bivariate probit model was used to estimate the relationships between interests in the park and respondents' business characteristics.

Respondents' Attitudes

Interest in the Agribusiness Park

The number of respondents interested in using specific facilities at the park by the two industries is shown in Table 2. Among the respondents from the Blueberry Industry, there were 75 (39%) respondents interested in using one or more functions of the park. Similarly, 70 (30%) respondents from the Fruit and Vegetable Industry indicated their interests in using the park, primarily as a transshipment point to national markets.

Regarding potential functions at the park, respondents were asked if they might be interested in being an owner/operator, investor, or cooperative member (Table 3). The percentage of respondents interested in at least one function specified in the survey from the Blueberry and the Fruit and Vegetable Industries are 33 percent and 36 percent, respectively. For the Blueberry Industry, the dominant interests were in cold storage, I.Q.F. freezing, fresh packing, sales and shipping, and wholesale outlets. In comparison, more respondents from the Fruit and Vegetable Industry

were interested in wholesale and retail outlets, and source of product for retail. In both industries, the least interest appeared to be in owning or investing in a truck brokerage at the park.

Opinions on the Viability of the Park

Respondents generally indicated that the park would be viable and enhance the operation in the Blueberry and Fruit and Vegetable Industries (Table 4). As expected, a larger percentage of respondents indicating interest in the park believed the specified functions to be viable than respondents not indicating any interest in the park. Approximately three-quarters of the respondents believed that a fresh pack and freezing operation at the park would be viable and enhance marketing. Furthermore, more than 80 percent of the respondents thought having a centralized transfer point would enhance product distribution.

Characteristics of Respondents

Interested in the Park

Interest in using and investing/operating in the park was expressed by respondents with involvement in virtually all aspect of the Blueberry and Fruit and Vegetable Industries. Number of respondents by their interest in the park and by their business function are presented in Table 5. The majority of the respondents were growers who also performed some processing and marketing functions. In both industries, approximately 49 percent of the respondents involved in growing indicated an interest in the park. Moreover, over 70 percent of respondents currently wholesaling Fruits and Vegetables indicated interest in the park.

Within both industries, those respondents interested in the park were generally larger growers and on average harvested more acres in 1992 than did those indicating no interest (Table 6). For instance, average acreage harvested was 192 and 129 for those interested in using and those interested in investing in the park facilities, respectively, as compared to 67 for uninterested respondents. Similarly, those Fruit and Vegetable farms interested in the park harvested on average at least 1.5 times the acreage than did uninterested farms.

As the majority of the respondents to the survey were growers participating in one or more marketing activities, it is of interest to assess the relationship between the number of marketing function growers performed and their interest in the park. It is evident from the survey that larger growers were involved in more marketing functions than small growers (Table 7). More importantly, among growers of similar size, those who were involved in more marketing functions

Table 1
Survey Responses

Industry	Sample Size	No. of Respondents	Percent
Potatoes	79	23	29
Blueberry	392	194	49
Fruit and Vegetables	534	235	44
Ornamentals	779	260	33
Christmas Trees & Wreaths	228	130	57

Table 2
Respondents' Interest in the Park for Specific Function

	Blueberry Industry		Fruit and Vegetable Industry	
	Number Interested	Percent of Sample	Number Interested	Percent of Sample
Cold Storage for Excess Produce	20	10.3%	9	3.8%
Fresh Packing	42	21.6%	32	13.6%
Freezing	42	21.6%	17	7.2%
Transshipment to Markets	54	27.8%	59	25.1%

Note: Percent is percentage of the sample in the respective industries. Multiple responses are included.

Table 3

Respondents Interested in Specific Functions at the Park
as an Owner/Operator, Investor, and/or Cooperative Member

	Blueberry Industry		Fruit and Vegetable Industry	
	Number Interested	Percent ¹	Number Interested	Percent ¹
Truck brokerage	18	9.3%	17	7.2%
Truck transfer point	26	13.5%	18	7.7%
I.Q.F. freezing	41	21.2%	13	5.5%
Wholesale outlet	40	20.7%	62	26.4%
Retail outlet	33	17.1%	52	22.1%
Cold Storage	49	25.4%	39	16.6%
Fresh packing, sales & shipping	40	20.7%	46	19.6%
Hydro-cooling facility	NA	NA	25	10.6%
Source of product for retail stands	NA	NA	53	22.6%

¹ Percentage of sample size of the corresponding industry; multiple responses are included.

Table 4

Blueberry, Fruit and Vegetable Industry Respondents' Opinions on the Viability of the Park

	Respon- dents	Response	Percent	Interested in	Interested in	Not Interested
				Using Park Facilities	being Owner/ Investor	
<i>If the park existed:</i>				----- Respondents -----		
<i>would it be possible to operate a viable fresh pack operation?</i>	260	Yes	72%	110	111	56
		No	28%	17	16	49
<i>would you expect it to enhance Maine fresh pack produce marketing?</i>	265	Yes	75%	113	116	60
		No	25%	16	16	44
<i>would it be possible to operate a viable freezing operation?</i>	225	Yes	72%	92	93	48
		No	28%	15	15	43
<i>would you expect it to enhance frozen Maine produce marketing?</i>	213	Yes	75%	85	93	51
		No	25%	16	15	31
<i>Would the central location of a fresh pack and frozen operation and transfer point</i>						
<i>--enhance product distribution?</i>	232	Yes	81%	106	115	53
		No	19%	9	12	30
<i>--increase truck availability?</i>	209	Yes	71%	88	95	41
		No	29%	18	22	33
<i>--Decrease transportation costs?</i>	211	Yes	61%	73	79	38
		No	39%	34	39	37

Note: multiple responses between interest in using and in owning/investing in park are included.

Table 5

Number of Respondents by Current Business Function and Interest

Current Business Function	Blueberry Industry				Fruit and Vegetable Industry			
	INTERESTED IN			Not Interested	INTERESTED IN			Not Interested
	Use Only	Invest Only	Both		Use Only	Invest Only	Both	
Grower	22	12	49	89	16	31	53	107
Fresh Packer	2	2	8	7	2	5	16	18
Freezer	2	0	3	3	3	0	2	1
Canner	1	0	1	2	0	0	2	0
Wholesaler	NA	NA	NA	NA	9	16	35	26
Retailer	NA	NA	NA	NA	10	24	39	51
Pick-your-own	NA	NA	NA	NA	6	14	30	47

Note: multiple responses in marketing functions are included.

Table 6

Respondents' Acres Harvested and Pounds Stored in Rented Freezers in 1992 by Interest

Interest	Blueberry		Fruit and Vegetable	
	Respondents	Average	Respondents	Average
Using Park Facilities				
Acres Harvested	64	192	66	56
lbs. Stored in Rented Freezers	11	1,005,682	3	79,000
Investing in Park Functions				
Acres Harvested	57	129	82	43
lbs. Stored in Rented Freezers	9	1,113,278	2	88,500
Not Interested				
Acres Harvested	83	67	95	27
lbs. Stored in Rented Freezers	2	3,516,000	0	0

Note: multiple responses in interest are included.

Table 7

Average Number of Production and Marketing Functions Growers Involved In
by Their Interests in Park and Farm Size

Interest	Blueberry Grower			Fruit and Vegetable Grower		
	Acres Harvested in 1992			Acres Harvested in 1992		
	< 10	10 to 40	> 40	< 5	5 to 30	> 30
	----- Average Number of Business Functions Involved -----					
Interested in Using the Park	1.28	1.38	1.58	2.60	3.26	3.69
Interested in Investing/Operating at the Park	1.33	1.45	1.45	2.33	3.32	3.55
Not interested	1.06	1.28	1.11	2.11	2.38	2.94

Table 8

Definitions of Independent Variables

Variable	Definition
Fruit and Vegetable	= 1 if the respondent is from the Fruit and Vegetable Industry = 0 if the respondent was from the Blueberry Industry
Grower Marketer	= 1 if grower involved in one or more marketing functions = 0 otherwise
Size-Medium	= 1 if acreage harvested in 1992 between 10 to 40 for Fruit and Vegetable growers and between 5 to 30 for Blueberry growers. = 0 otherwise.
Size-Large	= 1 if acreage harvested in 1992 greater than 40 for Fruit and Vegetable grower and more than 30 for Blueberry growers. = 0 otherwise.

tend to be more interested in using and/or owning/investing in the park.

Analysis of Factors Affecting Interest in Agribusiness Park

To statistically test the association between respondents' business characteristics and their interests in the park, a bivariate probit model was developed and estimated. The model consists of two binary-choice equations corresponding to interest in using park facility and interest in owning and/or investing in the park. The two dependent variables in the equations take on the value of one (1) if the respondent indicated in the affirmative, zero (0) otherwise. The factors considered as independent variables in the model and their definition are presented in Table 8.

The two equations can be estimated separately by single probit equation method to obtain consistent parameter estimates. But as there were a large number of respondents indicated their interest in both using park facilities and owning and investing in the park, the estimates may be inefficient due to the correlation between the disturbance terms in the two equations. To obtain consistent and efficient estimates of the parameters, the two equations in the bivariate probit model were estimated simultaneously using full information maximum likelihood method (see Greene for detail). The results are presented in Table 9.

The sign and magnitude of statistically significant coefficients indicate the direction and impact of the corresponding independent variables on the probability that the dependent variable takes on the value of one which indicates interest in using or owning/investing in the park.

The bivariate probit results indicate that larger farms are statistically significantly more interested in using potential facilities and owning and/or investing in the park than smaller farms, and that growers involved in some aspects of marketing are more likely to be interested in the park. The results also show that other things being equal individuals in the Fruit and Vegetable Industry are relatively less interested in using park facilities. On the other hand, there is no statistically significant differences in interest in owning/investing in the park between respondents from the industries.

Summary

There was substantial interest in an agribusiness park from within the Blueberry and the Fruit and Vegetable Industries in Maine. In general, respondents recognized an opportunity to increase marketing efficiency through more coordinated and centralized facilities in

an agribusiness park and considered that the creation of such a park would be viable. Potentially one facility could be shared to wholesale and/or auction fruits and vegetables as well as blueberries. In addition, interest in being an owner/investor in a facility at the park was relatively high among respondents.

It was found that larger growers who took on some marketing functions were more interested in either using or owning/investing in the park or in both than small growers who did not engaged in marketing activities. The interests and participation of large growers in the park are important to provide large enough volume for the park to achieve some economy of scale.

The general interest indicated by respondents warrants further effort towards the creation of such an agribusiness park. Toward this goal, the economic feasibility of particularly important enterprises should be identified.

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Table 9

Bivariate Probit Parameter Estimates of Factors Associated with Interest in Agribusiness Park

Variable	Interest in Using Park Facilities		Interest in Owning/Investing in the Park	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-0.670**	0.151	-0.786**	0.154
Fruit and Vegetable	-0.447**	0.205	-0.134	0.194
Grower Marketer	0.416*	0.210	0.444**	0.199
Size - Medium	0.356**	0.173	0.289*	0.170
Size - Large	0.617**	0.185	0.714**	0.183
RHO(1,2)	0.782**	0.046		

* Statistically significant at 10% level, and ** at 5% level.