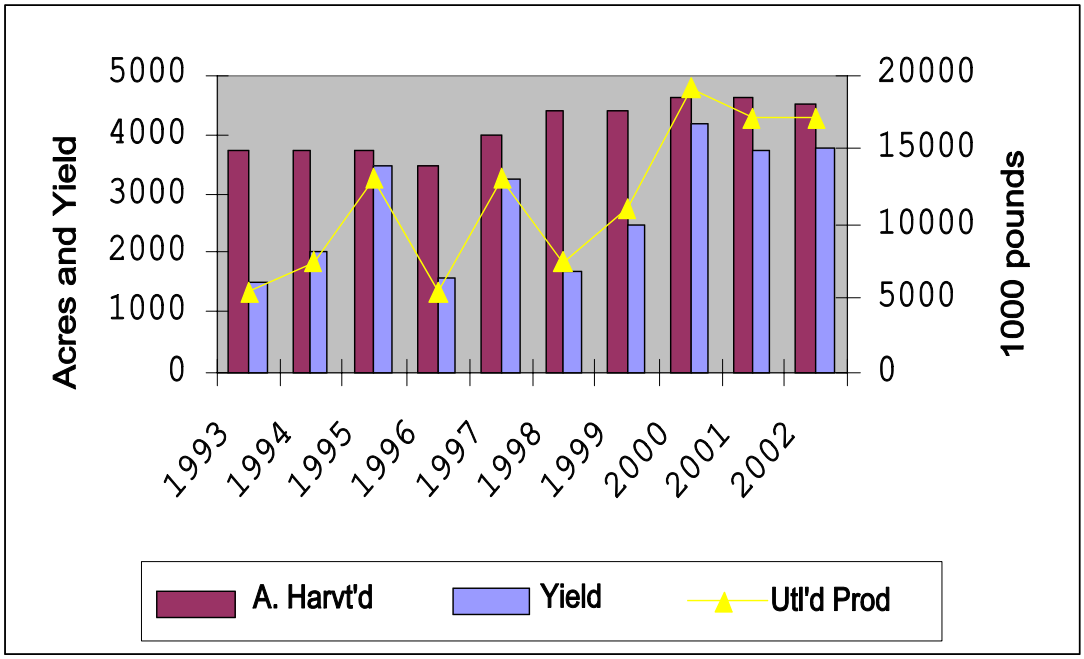
New Budget for Southern Highbush Blueberries in Soil

Esendugue Greg Fonsah
Assistant Professor and Extension Economist
University of Georgia
Tifton, GA 31793

Introduction

In Georgia, blueberries are a fast emerging crop in terms of acreage, yield and utilized production (Fig 1). The future of this crop is bright. Blueberries already rank 34th in the 2002 Georgia Agricultural Commodity rankings, generating about $29.6 million, equivalent to 0.34% of the total Georgia Farm Gate Value for 2002. This also represents 28% and 34.5% increase in farm gate value compared with 2001 and 2000 respectively.

Fig 1: Georgia Blueberries: Commercial Acreage, Yield and Production, 1993-2002



Source: Pollack and Perez (2003) "Fruit and Nuts Situation and Outlook Yearbook, , ERS/USDA, FTS-2003, October

According to Krewer and NeSmith (2002) and ERS/USDA report (2003) blueberry production in Georgia has experienced a steady growth since 1955 when virtually nothing was produced to 4500 acres in 2002 (Fig 1). In years 2000 and 2001, Georgia blueberries acreage harvested were at it peak at 4600. There have been several success stories as shown in Fig 1. Yield per acre drastically increased from a low of 1,490 pounds in 1993 to 3,780 pounds in 2002. The best peak was recorded in 2000 at 4,130 pound per acre. Utilized production experienced tremendous increase, from 5.5 million pounds in 1993 to

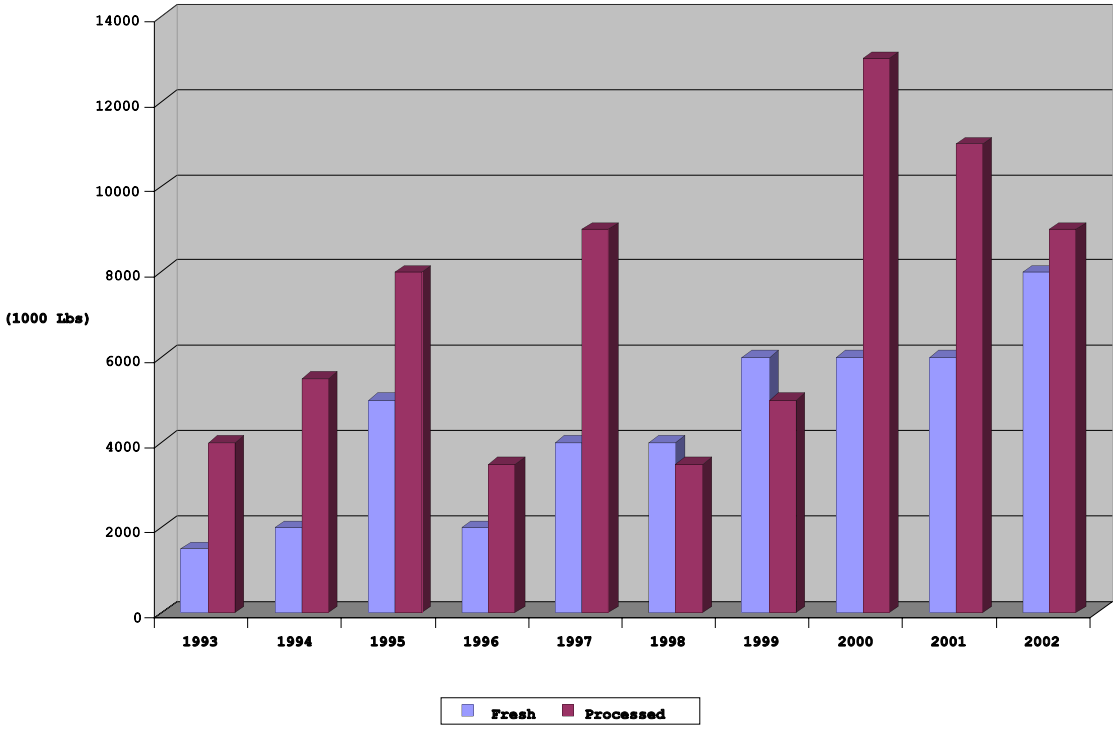
17 million pounds in 2002. Again, the peak was in year 2000 when utilized production was 19 million pounds.

Blueberries are Georgia's second most important fruit crop, after peaches. Nationwide, Georgia ranks third in acreage and between fourth and fifth in total production of cultivated blueberries in the United States. The reasons are multifold: (a) a state supported blueberry breeding program released well-suited rabbiteye blueberry cultivars, (b) the formation of the Georgia Blueberry Association cooperative and creation of the first large-scale commercial plantings and packing facility in the 1970s, (c) expansion of Michigan Blueberry Growers Association cooperative and penetration of the domestic and export markets in 1980s and 1990s and (d) establishment of the new southern highbush blueberry industry in mid-1990s.

Utilized Fresh & Processed Blueberries in Georgia

There is a continuous upward trend in both Georgia fresh and processed blueberries (Fig 2). The peak processed blueberries was recorded in 2000 at 13 million pounds while the peak fresh blueberries was recorded in 2002 at 8 million pounds. Fresh blueberries experienced fluctuating growth trend from 1993 to 1999. It leveled off at 6 million pounds from 1999 to 2001 and jumped to 8 million pounds in 2002.

Fig 2: Georgia: Utilized Fresh & Processed Blueberries: 1993 -2002



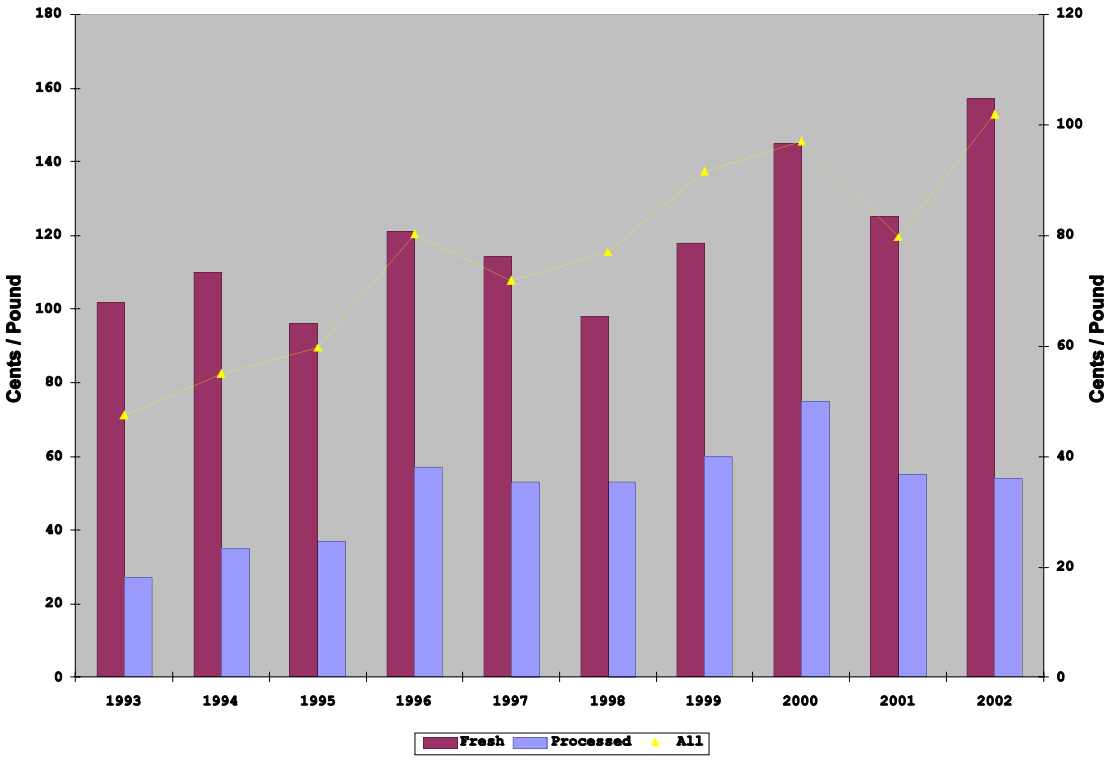
Source: Pollack and Perez (2003) "Fruit and Nuts Situation and Outlook Yearbook, ERS/USDA FTS-2003, October.

The trend for processed has been downward sloping since its peak in 2000. Fig 2 depicts over 30 percent drop in Georgia's processed blueberries.

Grower Prices for Fresh, Processed and All Blueberries

Pollack and Perez (2003) showed an increasing but fluctuating prices for both fresh and processed blueberries. Grower price for all blueberries is shown in fig 3. The lowest price for all, i.e. fresh and processed was recorded in 1993 at 47.5 cents per pound and the peak in 2002 at 102 cents per pound. Generally, fresh blueberries command better prices than processed. For instance ASB, NASS/USDA (2003) report showed that fresh blueberries prices range from 96 to 157 cents per pound whereas processed blueberries prices range from 27 to 75 cents per pound from 1993 to 2002 (Fig 3).

Fig 3: Georgia Grower Prices for Fresh, Processed and All Blueberries: 1993 -2002



Source: Pollack and Perez (2003) "Fruit and Nuts Situation and Outlook Yearbook, ERS/USDA, FTS-2003, October

Nationwide, cultivated blueberries are considered the second most important berry after strawberries. They generated over $200 million in farm gate value, equivalent to 13% of total berries produced in the United States from 2000 to 2002. Although strawberries generated over $1.0 billion over the same time period, the difference is largely due to the quantity produced. For instance, an average of 1.8 billion pounds of strawberries was produced compared with only 273 million pounds for cultivated blueberries. Price wise, blueberry still has an upper-hand (Pollack and Perez, 2003).

The estimated costs of producing southern highbush blueberries in soil in Georgia assumes year four to be the full production year. According to Krewer et al. (2003) this depends on how well the crop was taken care of during the establishment years, and since it is a perennial crop. Three types of blueberries are produced in Georgia, northern highbush, southern highbush, and rabbiteye. These varieties have similar and dissimilar characteristics. The northern highbush varieties perform better in cool climates and are rarely grown in Ga. Southern highbush are adapted to South Georgia, but grow best in lighter sandy-to-sandy loam soils with good drainage. They ripen early and enjoy a good market window. The correct site selection can drastically reduce *Phytophthora root rot* and *Botryosphaeria stem blight*, which are major variable cost component to the farmer (Smith, 2003; Fonsah et al., 2003). A number of insect pests also attack southern highbush and require treatment (Payne et al., 1993 and Steck, et al., 1993).

Variable Costs Components

A comparative variable cost analysis showed that in the first year of production, land preparation and planting are the major cost components as they contribute to 45 percent and 28 percent respectively (Table 1). In year two, pest and disease control and irrigation are the major costs components, as

Table 1: Comparison of Variable Costs Components Years 1-4

Variable Cost	Year 1	Year 2	Year 3	Year 4
Land prep	45.0%	0.0%	0.0%	0.0%
Planting	28.0%	0.0%	0.0%	0.0%
Fertility	1.6%	5.0%	8.1%	9.8%
Weed control	1.4%	8.7%	7.5%	14.0%
Pruning	0.3%	1.4%	9.9%	11.2%
Pest & Disease	11.7%	57.9%	50.2%	45.0%
Irrigation	3.7%	18.7%	16.1%	13.5%
Interest	8.3%	8.3%	8.2%	6.5%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

they contributed to 57.9 and 18.7 percent respectively. *Phytophthora* root rot control is so expensive and contributed to the jump in pest and disease control in year two and subsequent years. In year 3 and 4, pest and disease control contributes to 50.2 and 45.0 percent respectively. On the other hand, irrigation contributed 16.1 and 13.5 percent in years 3 and 4.

Fixed Costs Components

A comparison of fixed costs shows that overhead and management and irrigation are the most fixed cost components (Table 2). Overhead and Management contributes 48 percent of total fixed costs while irrigation contributes 31 percent. In year 2, irrigation contributes 50.7 percent while tractor and equipment contributed 34 percent. In year 3 and 4, irrigation contributed 49.6 and 19.6 percent respectively while tractor and equipment contributed 33.1 and 13.1 percentage respectively (Table 2).

Table 2: Comparison of Fixed Costs Components: Years 1-4

Fixed Cost	Year 1	Year 2	Year 3	Year 4
Tractor & Equipment	21.0%	34.0%	33.1%	13.1%
OH & Mgmt	48.0%	15.3%	17.3%	8.2%
Irrigation	31.0%	50.7%	49.6%	19.6%
Recap. Est.	0.0%	0.0%	0.0%	59.1%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Harvesting and Marketing Costs

Harvesting and maintenance cost for year one was zero since the farms were still being established. However, it was assumed that at least 500 pounds of fruits equivalent to 145 flats (3.3 lbs containing 12-125 g clamshells) with a 95 percent pack out rate would be harvested and sold in year 2.

Table 3: Harvesting and Marketing Costs: Years 1- 4

Harvesting and Marketing Costs	Year 1	Year 2	Year 3	Year 4
Harvesting	0.0%	24.0%	24.2%	24.9%
Custom Packing	0.0%	38.4%	38.3%	39.5%
Cooling, Handling & Brokerage	0.0%	37.6%	37.5%	35.6%
Total	**0.0%**	**100.0%**	**100.0%**	**100.0%**

In year 3 it was assumed that 1900 pounds with 95 percent pack out rate would be harvested and sold, while 4,000 pounds with 95 percent pack out rate was estimated for year 4. Based on this hypothesis, custom packing and cooling, handling and brokerage fees contributed to 37.6, 37.5 and 35.6 percent for year 2,3 and 4 respectively (Table 3). Custom packing also contributed to 38.4, 38.3 and 39.5 percent of total harvesting and marketing cost for year 2, 3 and 4, respectively.

Risk Rated Returns Over Total Costs

A risk rated returns over total costs showed that the best profit per acre of $15,018 can only occur 6 percent of the time and the worst return of $-596 can occur 7 percent of the time (Table 4). These are situations which happen once in a blue moon. On the other hand the expected chances of making profits are 69 percent or $5,011. Furthermore, the optimistic chances of making profits are 6, 16 and 32 percent while the pessimistic chances are 31, 16 and 7 percent respectively.

Table 4: Risk Rated Returns Over Total Costs

		Optimistic		Expected		Pessimistic	
Return ($)	15,018	12,476	9,935	5,011	4,730	2,067	-596
Chances	6%	16%	32%	69%			
Chances				31%	30%	16%	7%
Chances for Profit	92%			Base Budgeted Net Revenue	6,011		

REFERENCES

1. Krewer, G., D.S. NeSmith, P. Brannen, B. Boland, D. Stanaland and M. Bruorton (2003) "Establishing Highbush and Rabbiteye Blueberries in Georgia" (Draft in progress).

2. Krewer, G. and D.S. NeSmith (2002). "The Georgia Blueberry Industry: Its History, Present State, and Potential for Development in the Next Decade", *Acta Hort.* 574:101-106.

3. Noncitrus Fruits and Nuts 2002 Summary (2003) ASB, NASS, USDA, July.

4. Pollack, S. and A. Perez (2003). "Fruit and Tree Nuts Outlook", ERS/USDA, FTS-305, July 30.

5. Payne, J.A., A.A. Amis, R. J. Beshear, R.J. Gagne, D.L. Horton, and P.M. Lyrene (1993). "New" rabbiteye blueberry insects: maggots, midges, thrips, and root weevils, pp. 37-38. In Proc., 6th Biennial Southeast Blueberry Conference and Trade Show, University Georgia Cooperative Extension Service, 126 pp.

6. Steck, G.J. and J.A. Payne (1993). "Blueberry Maggot, Rhagoletis mendax (Diptera: Tephritidae), *Entomology Circular No. 358,* Florida Dept. Agriculture & Consumer Services, Division of Plant Industry, July/August.

7. Smith, B.J. (2003). "Susceptibility of Southern Highbush Blueberry Cultivars to Phytophthora Root Rot and Botryosphaeria Stem Bight", In: 11th Biennial Southeast Blueberry Conference Proceedings, Civic Center and Hyatt Regency, Savannah, Georgia, January 10-12.

NOTE: Also see Proceedings for the 2004 Georgia Blueberry Conference pages 71 to 76.