Replanting Blueberries in Old Fields

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Introduction

Georgia has blueberry yields well below the national average. This is due in part to early season cultivars, freeze damage, insect and disease problems. However, a very significant part of the problem is missing bushes in the fields. Rabbiteyes have the potential to live for 50 years of more, but due to poor drainage and problems during establishment it is common to have 10-30% missing bushes after 10-15 years. Usually the drainage problems are corrected over time, but grower replanting has been very limited due to weed and herbicide problems. Landscape fabric is a woven plastic cloth, which allows water and fertilizer to pass through, but prevents most weed growth. Some years ago, the cost was about 10 cents per square foot, rather expensive for use in blueberry fields, since a 3 by 4 foot swatch would cost $1.20. In 2003 a local manufacturer of landscape fabric was located, Geotextiles, Enigma, Ga. which manufactures and sells landscape fabric for about $.03 per square foot or $.35 for a 3 by 4 foot swatch. This discovery made use of landscape fabric feasible.

In 2004 we conducted extensive experiments in Clinch and Appling Counties, Ga. testing two plant sizes (rooted cuttings and 1 gallon plants) and many replant aids such as control released fertilizer, soil amendments and various mulches alone and in combination. On gallon size plants, landscape fabric, peat moss and controlled release fertilizer appeared to be most beneficial in replant establishment. In 2005 we proposed to test the best treatments on three sites of varying types in south Georgia.

Materials and Methods.

Three farms with variable conditions were selected for the 2004. 1. A moist, weedy site with drip irrigation, 2. A predominately dry site with moderately heavy weed press and a poor drip irrigation system in that part of the farm, 3. A non-irrigated farm with good soil, but almost weed-free from extensive diuron (Karmex) use. Experimental

design was a randomized complete block with four replications of four plants per treatment per replication.

Treatments tested:
1. Control, no amendments
2. Landscape fabric, 3 feet by 4 feet wide, held down with pins.
3. Landscape fabric plus controlled release fertilizer in the planting hole.
4. Landscape fabric plus one gallon of wet peat
5. Landscape fabric plus controlled release fertilizer in the planting hole, plus one gallon of wet peat moss mixed in the planting hole.

Landscape fabric was purchased from GeoTextiles, Enigma, Ga. at a cost of $.35 per yard, three feet wide. It was cut into three by four foot squares, an X cut in the center and held in place with four landscape fabric pins (A.M. Leonard, Pica, OH). Treatments three and five had the addition of one gallon of wet Canadian peat moss mixed in the planting hole a rate of about 50/50 peat and soil. Degree of mixing varied with the worker. Treatment five had the addition of one tablespoon of Osmocote 17-6-12. One half was placed in the bottom of the planting hole and one half mixed with the backfill soil. One gallon size 'Brightwell' plants where used in the experiment. All plants were pruned to about one foot in height with a gasoline hedger. Plants where transplanted in early to mid March. Growers provided any additional fertilizer or weed control during the course of the summer. The season was very rainy until late summer and then very dry. In late September plants were measured. Measurements taken were height, width in row, width across row and survival.

Results and Discussion.

Landscape fabric pinned down with four pins stayed in place on all sites despite tropical storm Dennis. On site 1 and 2, with heavy weed pressure, the landscape fabric treatments provided very noticeable weed reduction in the immediate area around the plant. However, on site 1 crabgrass overgrew the landscape fabric late in the summer. On site 1 the height of plants in the landscape fabric only treatment was less than the control. There is not an obvious explanation for this anomaly. On site 1, landscape fabric plus slow release fertilizer had a significantly greater width in row, width across row and growth index than the control. On site 2, landscape fabric plus fertilizer had a significantly greater width in row than the control. On site 1, landscape fabric plus peat had a significantly greater width across row than the control. However, all other measurements were not significant due to variation. Except for one treatment in one replication, there was a trend for treatments contain landscape fabric to produce the largest plants. Also, except for one treatment in one replication, there was a trend for plant survival to be greater with landscape fabric treatments. The addition of peat and slow release fertilizer to the landscape fabric treatment did not consistently increase growth more than just the landscape fabric. Most plants received supplemental fertilization from the growers in the course of routine fertilization. In summary, it appears that landscape fabric may be beneficial for increasing the survival and growth of replants in old blueberry fields with a variety of different soil types and conditions. If

growers use hand wand applications of herbicides such as glyphosate and Rely the landscape fabric is very beneficial in serving as a blueberry plant locator amongst the weeds. Landscape fabric also reduces the need to get close to the plant with herbicides.

Table 1. Effect of planting treatments on survival and growth of 'Brightwell' replants

Location	Treatment	Height (cm)	Width in row (cm)	Width across row (cm)	Growth index (cm)	Survival (%)
1. Moist, weedy	Control	41.8 a[z]	22.3 b	19.9 c	28.2 bc	81.3 a
	Landscape fabric	29.7 b	21.4 b	22.4 bc	24.5 c	100.0 a
	Landscape fabric & peat	44.8 a	26.5 ab	28.4 ab	33.2 ab	100.0 a
	Landscape fabric & slow release fertilizer	46.6 a	29.8 a	35.6 a	37.3 a	93.8 a
	Landscape fabric & peat & slow release fertilizer	40.8 ab	23.0 ab	27.9 abc	30.6 abc	86.5 a
2. Dry, weedy	Control	28.4 a	15.6 b	20.6 a	21.4 a	55.0 a
	Landscape fabric	37.2 a	27.5 ab	30.8 a	31.7 a	52.2 a
	Landscape fabric & peat	34.4 a	24.5 ab	28.1 a	29.0 a	78.7 a
	Landscape fabric & fertilizer	32.3 a	28.7 a	32.8 a	31.3 a	70.0 a
	Landscape fabric & peat & fertilizer	33.0 a	25.9 ab	29.7 a	29.5 a	65.0 a
3. Weed free, diuron program	Control	41.8 a	42.0 a	38.2 a	40.8 a	56.3 a
	Landscape fabric	52.1 a	43.2 a	45.6 a	46.8 a	75.0 a
	Landscape fabric & peat	45.7 a	51.3 a	51.7 a	49.7 a	68.8 a
	Landscape fabric & fertilizer	40.5 a	44.2 a	45.4 a	43.4 a	75.0 a
	Landscape fabric & peat & fertilizer	46.0 a	52.5 a	49.0 a	49.2 a	81.3 a

[z]= Means with the same letter in a column are not significantly different ($P \geq 0.05$) according to the DIFF option in PROC MIXED (SAS,2000) with Satterthwaite option on the model statement