ENGAGE AGRO

Technical Bulletin

Parka™ POWERED BY SureSeal™ BIOFILM TECHNOLOGY

*Improves Marketable Fruit Yields**

Objective: Fresh market rabbiteye blueberry produced in the southeastern US can be severely impacted by heat, humidity, and mechanical harvest. Some biofilm technologies applied to fruit crops have reduced splitting and advance maturity. The claims would suggest an improvement in packout and fruit quality. Rabbiteye blueberry 'Brightwell' is a high yielding cultivar grown commercially in Georgia; however, it is prone to fruit cracking in some seasons. To identify if biofilms can improve packout under field conditions a study was conducted to evaluate packout and fruit quality of 'Brightwell' using a biofilm called SureSeal™ formulated as Parka™ (Cultiva™, Las Vegas, NV), which is labeled for blueberry production.

Methods and Materials: In 2016, Parka was applied to Rabbiteye blueberry 'Brightwell' in an on-farm experiment at a commercial farm in Bacon County, GA (31°31'08 N 82° 31' 18 W). Two rates and timings were used, 1 gallon/acre on June 15th (single application) and .5 gallon/acre on June 15th and 27th, and applications were applied at just under 50 gallons/acre. Harvest was done mechanically with an over-the-row harvester on June 16, 22, and 29th. Fruit was collected in lugs (61 cm x 40.6 cm x 18.7 cm), the lugs were transported to a packing shed, and held at 50 °F for +12 hours before sorting. Four randomly selected lugs from each treatment were hand sorted. A 5 pound sample from each lug was graded in three categories: marketable, soft, and trash. Fruit cracking was not observed and that category was omitted. Marketable fruit samples from each sorted lug were taken to the Vidalia Onion Lab in Tifton, GA for analyses of fruit quality: 100 fruit weight (g), soluble solids concentration (SSC; BrixStix, Cole Palmer, Vernon Hills, IL) and percent acid (0.1 N sodium hydroxide)(Mettler Toledo DL15 Titrator, Columbus, OH). For SSC and percent acid analyses, 25 fruit per subsample were pulped (PowerGen 500, Fisher Scientific, Waltham, MA) and centrifuged (Allegra 25R Centrifuge, Beckman Coulter, Brea, CA) at 4100gn in 50 ml high-speed plastic centrifuge tubes (Fisher Scientific, Waltham, MA). The liquid portion was collected and evaluated for SSC and % acid. For postharvest weight loss, 100 ripe fruit from each sorted lug were placed into its respective pint clear clamshell (APET Clamshell 480, Pactiv LLC, Lake Forest, IL), placed on the counter in the lab, and weight (g) was measured every two days over an eight day period. Data were analyzed using SAS's 9.4 Proc GLM (SAS Institute Inc., Cary, NC, U.S.). Means were separated at $P<0.05$ level using Fisher's least significant difference (LSD) test.

June 16th, mechanically harvested 'Brightwell' from area treated with Parka. Packout was 74.0% marketable, 18.0% soft fruit, and 8.0% trash

See Results on Reverse

*Based on: *Preliminary report on Biofilm Technology use in Rabbiteye Blueberry (Vaccinium virgatum Aiton syn. ashei) at harvest in relation to packout and fruit quality* Erick Smith[1] and William Lovett[2]. [1]University of Georgia, Department of Horticulture, Tifton Campus (ericks@uga.edu) [2] University of Georgia, Extension, Bacon County, GA (welovett@uga.edu)

Results: Packout over the three harvests was increased by 6.7% with the single 1 gallon/acre application of Parka compared to untreated fruit (Table 1). In the same comparison, untreated fruit had 33% more soft fruit. Two, .5 gallon/acre applications did not statistically improve packout; however, untreated fruit has 31% more soft fruit. When yield data is compared within harvest date, Parka applications significantly improved packout for the June 23rd and 30th harvests; however, the June 16th harvest had similar yield between the treatments. (Figure 1). Weight loss was similar between the treatments, thus it was not improved by the Parka application. Fruit quality was similar within harvest date between the treatments.

Photo shows fruit sorting thanks to Bob Boland (MBG), John Ed Smith (MBG), and William Lovett (UGA). The facility is Naturipe Farms LLC, a partnership between MBG Marketing, Hortifrut SA, Naturipe Berry Growers and Munger Farms in Alma, GA; the largest berry processing facility in the Southeastern United States. The room is at 50 °F.

Table 1. Total packout % over the three harvest dates (16, 22, and 29 June, 2016). Applications of Parka were at 1 gallon/acre (single application June 15) and .5 gal/acre (two applications on June 15 and 27th). Fruit were machine harvested and 4 lugs per treatment sampled. Means followed by a different letter within a column are significantly different at $P < 0.05$ according to Fisher's least significant difference (lsd) test.

Table 1 **Brightwell 2016 Packout (%)**

	Marketable	Soft	Trash
Untreated	70.7b	23.3a	5.7b
1 gal/acre 1 application	76.7a	15.6b	9.1a
.5 gal/acre 2 applications	75ab	16.1b	8.9a

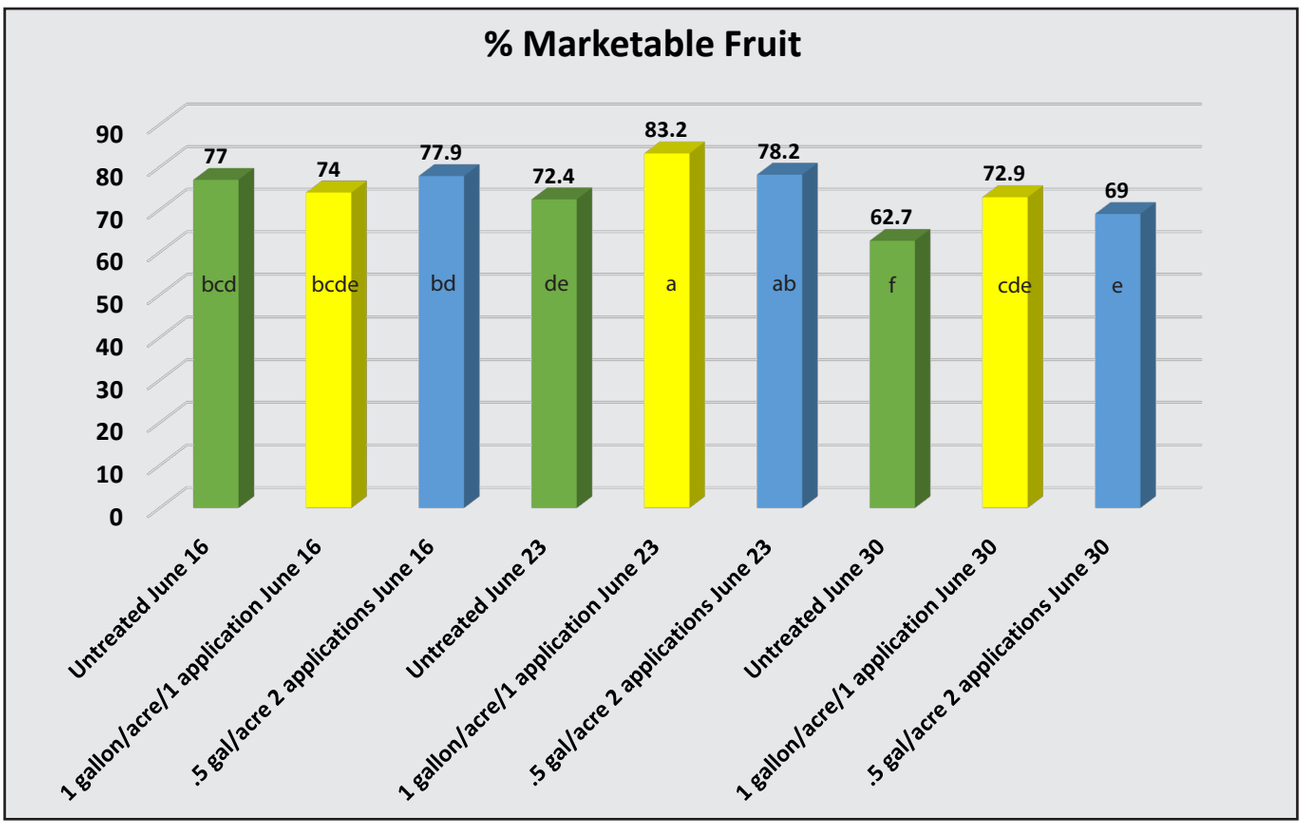

Figure 1 Shows the harvest by date and treatment. Fruit were machine harvested and 4 lugs per treatment sampled. Means followed by a different letter are significantly different at $P < 0.05$ according to Fisher's least significant difference (lsd) test.

Manufactured By:

cultiva™

4780 W. Harmon Ave. Suite 6 • Las Vegas, NV 89103
888.638.1955 • www.cultivaipm.com
US Patent # 8,752,328

Marketed By:

ENGAGE AGRO

118 East Carleton Street • Suite B
Prescott, AZ 86303 • Phone: 928-445-7990
www.engageagrousa.com