Substrate Nutrition Guidelines- Prize and Arabella

Introduction

The PSI Everbearer varieties Prize and Arabella provide growers with viable alternatives in terms of yield (Prize) and quality (Arabella) to proprietal (restricted) varieties (e.g. Sweet Eve 2 and Summer Blush from BerryWorld, or Driscolls Katrina and Zara from BerryGardens).

Prize is a mid-tier variety with good production potential, while Arabella is a variety with exceptional flavor and top-tier potential but slightly lower yield potential than Prize. Both varieties produce cosmetically attractive fruit with good shelf life and consumer appeal.

Prize Variety Summary

Prize offers the following advantages:

- **Good yield potential-** Prize consistently produces 900-1200g per plant at 8 plants per linear metre from bare root plant material.
- **High Class 1 % and larger fruit size-** (Average Berry weight 21g) leading to more economical harvest compared to smaller fruited varieties.
- **Attractive fruit with superior shelf life-** compared to many alternatives. Acceptable flavor and texture.
- **Lower management costs-** consistent season-long production with less de-leafing required compared to some alternatives when grown using a lower Nitrogen recipe.

Figure 1. Fruit Quality characteristics of Prize

Prize is a later fruiting Everbearer variety commencing fruiting on spring-initiated flower around the end of July from March planted bare root plants, following a small production from overwintered flowers commencing around mid-June. Prize generally fruits late into the autumn without significant fruit quality problems.

Prize Plant Types and Establishment

Prize plants are available as cold stored bare-root plants from Spain, fresh low chill mini-tray plants from Portugal, and cold-stored tray plants and mini-trays from the Netherlands. Each plant type has a different cropping profile but overall yields should be similar.

Suggested planting density is 8 plants per linear metre for all plant types apart from Tray Plants, which perform best at 6 plants per metre.

Establishment of bare root or tray plant Prize is easier during cooler conditions in the early part of the year. Moderate temperatures and slower initial growth promote good plant establishment. Removing pre-flower (i.e. any open flower expressed within 4000 GDH of planting) helps to promote better initial root and crown development, and higher overall yield.

Prize Nutrition Guidelines

Prize is a relatively vigorous variety and benefits from a moderate Nitrogen feeding programme in order to manage leaf area and prevent excessive leaf development.

To minimise the incidence of Calcium (Ca) related deficiencies (e.g. leaf tipburn and Calyx burn on emerging flowers), it is important to plant Prize into well buffered coir substrate. If pre-plant Barium Chloride test shows insufficiently buffered substrate (i.e. containing too much Potassium and/or Sodium and insufficient Calcium), it is important to re-buffer with additional Calcium Nitrate solution and to flush the substrate (to <1.5 mS) before planting.

Additionally, the Starter feed K/Ca ratio should be in the range 0.8-1.0 during the establishment and vegetative growth phase in order to minimise tip burn and calyx burn.

Overall Potassium (K) requirement for Prize during the fruiting phase is similar to other Everbearer varieties, with a drip K/Ca ratio of between 1.5 and 1.7 usually being sufficient unless the crop load is very heavy. If there is a large gap between autumn-initiated and spring-initiated flowers, it is recommended to bring the drip K/Ca back down to 0.8-1.0 for 2-3 weeks in order to minimise tip-burn on emerging trusses, before increasing again to 1.5-1.7 for the second flush of fruit.

Drip pH requirement for Prize is similar to other Everbearer varieties (5.3-5.5). Aim for an EC Sum (i.e. Combined Drip + Drain EC) of 2.6-2.8 mS during the vegetative phase and 3.0-3.2 mS during the fruiting phase. EC Sum levels which are too high may result in reduced fruit size and increased calyx burn.

Give sufficient runoff to control substrate and drain EC and to prevent the build-up of Sodium, Sulphate and Chloride which do not contribute to plant nutrition in large amounts.

Vary runoff with conditions, aiming 20-30% runoff during sunny weather and 10-20% runoff during cloudy weather for fully established plants. Small plants require slightly less runoff.

For optimum results, drip fertilizer recipes should be calculated according to substrate and background water supply. General guidelines on nutrient targets are given in the table below:

Delphy	NO_3-N	NH_4-N	P	K	Ca	Mg	S	Fe	Mn	Zn	B	Cu	Mo	EC feed (mS)	EC sum (mS)	pH
-Vegetative	7.1	0.00	1.3	3.4	3.5	1.1	2.2	39.4	21.9	7.7	13.0	1.9	0.5	1.2-1.6	2.6-3.0	5.5
- Fruiting	8.0	0.00	1.3	5.2	2.4	1.1	1.5	35.8	18.2	7.7	15.7	1.9	0.5	1.2-1.6	2.6-3.0	5.5

Figure 2. Suggested Vegetative (Starter) and Fruiting recipes (mmol/L) for Prize in Coir Substrate

(N.B. Large (2-3 crown) Tray plants need a higher initial Nitrogen level to sustain the higher first flush. Aim for 9-10 mmol/l initial N.

Summary

- Prize is a more vegetative variety than Arabella and benefits from a lower-N feeding regime.
- Arabella requires higher N in order to produce sufficient leaf area and to sustain cropping though the season.
- Drip + drain EC targets of 2.6-3.2 mS should be maintained for optimum results. Too low an EC Sum results in weaker plants due to insufficient nutrients. Too high an EC Sum results in more tipburn, Calyx burn and smaller fruit.
- It is important to give sufficient runoff to control the build-up of EC, especially on the lower-N Prize recipe which contains higher levels of Sulphate. Vary % runoff according to plant size and weather conditions.
- Aim pH 5.3-5.5 at the dripper with both varieties to prevent trace element deficiencies.
- Nutrient demand varies with plants stage, crop load, temperature and other parameters. Base starter and fruiting recipes are guidelines only.
- It is recommended to send substrate, drip + drain, and/or leaf samples to a recognised laboratory for analysis every 2-4 weeks during the growing season. Fertilizer recipes can then be adjusted according to the results.