Nitrogen triggers floriferous flush in strawberry guava (Psidium cattleianum)

Frédéric Normand and Thierry Michels
Cirad-Flhor, BP 180, 97455 Saint Pierre cedex, Réunion Island, France
normand@cirad.fr; michels@cirad.fr

Strawberry guava is a promising new fruit species in Réunion Island. Its phenological cycle in natural conditions is composed of a single floriferous flush followed by a 3 to 6 month resting period which lasts until the next annual floriferous flush. Empirical observations on strawberry guava grown in orchard suggest that complete fertilisation (NPK) triggers a floriferous flush leading to a harvest.

The objectives of this study are to specify the factors affecting this floriferous flush: which nutrient(s) is (are) involved in the floriferous flush, and what are the effects of fertiliser amount and plant phenological stage on flush intensity?

**Results**

NPK and N treatments triggered floriferous shoots shortly after nutrient application: buds swelled after 30 days and burst after 50 days. NPK treatment produced more shoots and flower buds than N treatment, but differences were not significant (Fig. 1). Control, P and K treatments did not trigger either floriferous or vegetative treatment, but differences were not significant (Fig. 1). Control, P and K treatments did not trigger either floriferous or vegetative treatment, but differences were not significant (Fig. 1).

For fertilised plants (18-90 g N), these variables increased with fertilizer amount but differences were not significant. The plant response was significantly more intense when fertilisation was applied after a 3 months resting period after harvest than when applied at harvest, in particular for the number of flower buds (Fig. 2 and 3). The number of shoots and flower buds were significantly higher for fertilised plants (18-90 g N) than for control plants (0 g N), except for the number of flower buds on plants fertilised at harvest. For fertilised plants (18-90 g N), these variables increased with fertilizer amount but differences were not significant.

**Conclusions**

- Nitrogen triggers a floriferous flush in strawberry guava, modifying thereby its natural phenological cycle.
- The amount of nitrogen applied does not affect the number of shoots and flower buds produced.
- The plant response is however affected by the plant phenological stage at fertilisation, with a weak response when nitrogen is applied at or just after harvest. This suggests that the plant response, in particular the number of flower buds, is related to the plant carbohydrate availability.
- To trigger production cycles with nitrogen has interesting consequences: several harvests per year, off-season production.