

MMSU FRESH MARKET TOMATO HYBRIDS FOR OFF-SEASON PLANTING

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Introduction

Tomato during the off-season, *i.e.*, wet season (WS), commands a very high price. However, farmers in the Ilocos seldom grow tomato during this period due to lack of suitable varieties. The recommended open-pollinated varieties generally do not perform well during the WS.

Starting in mid 1980's, the Mariano Marcos State University (MMSU) and the Department of Agriculture (DA) have been actively involved in the National Cooperative Testing (NCT) of tomato, but none of the tomato varieties released by the Philippine Seed Board, including those claimed to be all-season, showed good performance and stable yields during the WS trials. These cultivars could not tolerate the hot/humid conditions of the area, resulting in excessive flower drop and abortion. Further, these cultivars could not withstand the damage caused by strong typhoons, a common phenomenon in the Ilocos provinces during the WS.

In contrast, the native tomato cultivar was observed tolerant to leaf diseases and excessive moisture. It could recover from typhoon damage provided the planting site is not waterlogged. Moreover, the native tomato is very much preferred by local consumers because of its sour and succulent fruits. Thus, it commands a price higher than the other varieties. However, there are negative attributes of this cultivar, which need improvement like the undesirable shape, susceptibility to cracking and poor shelf life of the fruits. These negative characteristics can only be improved by hybridizing this cultivar with other genotypes.

Thus, MMSU launched a program to improve the negative attributes of the native cultivar and its performance during the WS. Through this program, the native cultivar was hybridized with 21 tomato lines, which were selected from the entries of the NCT based on their performance during the WS trials. Of the 21 crosses, three hybrids consistently showed promising performance during the five-year (1992-1997) WS trials. These are dubbed as MMSU Hybrid 1, MMSU Hybrid 2, and MMSU Hybrid 3.

Characteristics of the Hybrids

The three hybrids are fresh market tomato type. These have indeterminate growth habit and are moderately resistant to insect pests and diseases and perform well even during high intensity rainfall and strong typhoons. With appropriate cultural management, all the three hybrids could recover from typhoon damage by producing new buds and lateral shoots/branches which subsequently produce flowers and fruits. The fruits of the hybrids possess the qualities preferred by local consumers, *i.e.*, juicy and sour, but are moderately susceptible to moderately resistant to cracking if harvested at breaker stage or half ripe. Following are the specific characteristics of the hybrids:



MMSU Hybrid 1

- Matures in 62 days
- Has an average vine length of 137 cm at maturity
- Fruits are moderately susceptible to cracking
- Round fruits with an average weight of 23 g
- Produces an average fruit yield of 880 g plant⁻¹ equivalent to 25.86 t ha⁻¹



MMSU Hybrid 2

- Matures in 67 days
- Has an average vine length of 142 cm at maturity
- Fruits are moderately susceptible to cracking
- Deep oblate fruits with an average weight of 28 g
- Produces an average fruit yield of 750 g plant⁻¹ equivalent to 24.23 t ha⁻¹



MMSU Hybrid 3

- Matures in 63 days
- Has an average vine length of 148 cm at maturity
- Fruits are moderately resistant to cracking
- Round fruits with an average weight of 25 g
- Produces an average fruit yield of 740 g plant⁻¹ equivalent to 23.19 t ha⁻¹

Benefits

The hybrids offer excellent opportunities for Ilocos farmers to venture into profitable tomato production during off-season. These hybrids perform better than the native cultivar as well as the recommended open-pollinated varieties. This is particularly so during periods of high intensity rainfall and strong typhoons, which are typical in the Ilocos Region.

Planting any of the MMSU tomato hybrids during the off-season is highly profitable. For the five-year trials, 1992-1997, MMSU Hybrid 1 yielded an average of 25.86 t ha⁻¹; MMSU Hybrid 2, 24.23 t ha⁻¹ and MMSU Hybrid 3, 23.19 t ha⁻¹. At a farm gate price of ₱15 kg⁻¹, the net income per hectare could range from ₱300,000 to ₱340,000. This is equivalent to a benefit cost ratio of 6.75.

The hybrids possess the qualities preferred by local consumers. The fruits are juicy and sour. These also possess the external features of the native cultivar and thus, marketing of the product is not a problem. Seeds of these hybrids could be produced easily. With little training, the farmers can already produced their own planting materials for the off-season production or may even venture into commercial seed production of the hybrids.