

New Strawberry Varieties for Italy*

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In the last five years the relative importance of the strawberry varieties grown in Italy has greatly changed in an attempt to satisfy changing demands in the market place, and to adopt the culture of this fruit to the peculiar ecological conditions of the different areas where strawberries are spreading presently (Branzanti, 1964; Baldini, 1970).

Till now, bringing our varieties up-to-date has been exclusively based on the introduction of new varieties from Germany, France, Great Britain, United States and other foreign countries. In this work the Istituto di Coltivazioni Arboree of the University of Bologna has played an important role by supporting a series of investigations carried out during a ten year period in the experimental plots of Imola and Cadriano, near Bologna.

However, starting in 1963, another approach has been followed at the mentioned Institute, involving the making of a preliminary series of crosses among some interesting standard varieties.

More than 5,000 seedlings raised in this way have been systematically observed during a four year period, in order to get new selections with the following characters: early or late ripening in relation to the chief varieties presently grown; high vigour; heavy bearing; perfect flowers; berries of medium to large size; bright red, firm, juicy, with high dessert and shipping quality.

As a result of this breeding work,

the following new varieties, listed according to their ripening times, have been selected: 'Precoce di Romagna,' 'Rossella,' 'Isabella' and 'Tardiva di Romagna.'***

Precoce di Romagna

This variety is a cross between 'Pocahontas' and Blakemore.' *Plants* vigorous, upstanding, rather sparse. *Leaflets* are large, elliptical to rounded, shining green, thin, provided with comparatively pronounced teeth, and with a short rather hairless stem.

Flowers are perfect, partially covered by the leaves, and develop in long clusters; corolla large, consisting of five usually rounded, petals about 14 mm in length and width; calyx as large as the corolla; about 15 sepals, 11 mm long and 4 mm wide. Blossoming season is early.

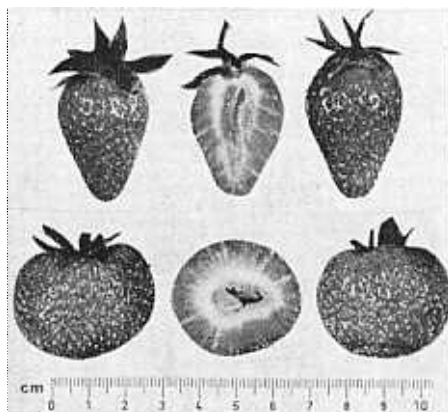


Fig. 1. Precoce di Romagna (top) and Rossella (bottom) strawberries.

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***These varieties have been described according to the schedule suggested by Baldini and Branzanti (1964), but relating the ripening times to "Gorella," instead of "Madame Moutot."

Berries are medium in size (average: 40 mms high, 27 mms wide), easily capped, conic to long conic, regular, slightly elliptical in cross section, rather pointed at the tip, rounded or tapered at the base; calyxlobes reflexed; deep red in colour; seeds medium in number and set rather superficially; flesh firm, dark pink, well flavoured, sweet, subacid; fruit clusters long, prostrate. Ripening time: about a week earlier than "Gorella."

Rossella

'Rossella' originated as open-pollinated seedling of 'Paymaster.' *Plants* are rather vigorous and tufty. Leaflets are small, broad-elliptical to rounded, rather thin, bright green, small toothed, and with a long, thin petiole.

Flowers are small, perfect, in long but thick clusters, generally covered by the leaves; petals 5 to 7, overlapping, elliptical, 10 mms long, 13 mms wide; calyx small, formed by narrow sepals 10 mms long, and reflexed.

Berries are medium in size (average: 30 mms high, 36 mms wide), oblate, regularly shaped, with long,

upstanding stems; apex rounded; base flattened or sunken; capping rather difficult; color shiny, deep red; seeds raised; flesh rather firm, bright red, juicy, subacid, well flavoured. Ripening time: 5 days earlier than "Gorella."

Isabella

The variety Isabella originated as a cross between 'Pocahontas' and 'Surprise des Halles.' *Plants* are very vigorous, upstanding, tufty. Leaflets medium in size, long elliptical, thin, light green, provided with comparatively short teeth.

Flowers are perfect, held by medium-sized clusters, nearly all covered by leaves; corolla rather small; petals rounded, long and wide 5 mms; calix wider than corolla and formed by about 13 sepals, 12 mms long and 4 mms wide.

Berries are large (43 mms long and 32 mms wide), conic to long-wedged-shaped, light red, easily capped; the tip is pointed or slightly rounded, the base rounded or flattened, sometimes sunken; flesh firm, pink; juicy aromatic, pleasant. Ripening time: five days earlier than "Gorella."

'Tardiva di Romagna'

'Tardiva di Romagna' originated as a cross between 'Macherauch Späternte' and 'Cambridge Favourite.' *Plants* are very vigorous, spreading, tufty. Leaflets are large, rounded, thick, dark green, scarcely toothed, and provided with a medium-sized, hairy stem.

Flowers are perfect, nearly completely covered by the leaves, borne in medium-sized clusters; stamens short; corolla medium in size, made up of 6-7 overlapping petals, rounded, 13 mms long and wide; calyx larger than corolla, with about 13 sepals, 16 mms long and 3 mms wide.

Berries are large (44 mms high, 38 mms wide), easily capped, deep red,

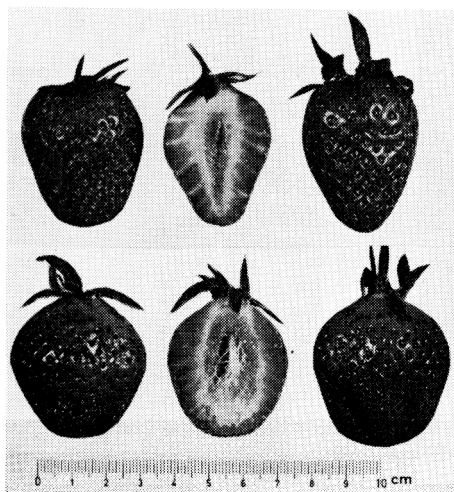


Fig. 2. Isabella (top) and Tardivadi Romagna (bottom) strawberries.

conic to short wedge, with rounded apex, and rounded or flattened base; seeds raised; flesh firm, juicy, deep red, subacid, aromatic, very pleasant. Ripening time: nearly ten days later than "Gorella."

Outstanding Characters of the New Varieties

'*Precoce di Romagna*': a very early variety whose berries nearly resemble those of "Regina" but better in size and in ripening time; easy capping, good flavour and good shipping quality; as the clusters are prostrate, mulching appears a suitable expedient for this variety.

'*Rossella*': an early ripening variety, producing attractive berries, very regular in shape and size; owing to the strength of the clusters, fruits keep clean and healthy even if plants are not grown in mulched plots. Shipping quality good; cold storage ability satisfactory.

'*Isabella*': is an early ripening variety, producing quite large berries, provided with a nice color and a good, firm flesh, and very good dessert and shipping quality.

'*Tardiva di Romagna*' is a late ripening variety, bearing large berries, similar in color to *Souvenir de Charles Machiroux* but regular in shape, very firm, juicy, with good flavour, and ripening over a short time. Shipping quality is very good.

All of the above described varieties have proved to be more productive than the standard varieties ripening at the same time (Table 1).

'*Precoce di Romagna*' and '*Rossella*' are vigorous, '*Isabella*' and '*Tardiva di Romagna*' very vigorous.

Having been patented, a special certification label will be delivered by Istituto di Coltivazioni Arboree with commercial runner plants which will be available in Autumn, 1970.

Table 1. Weight of the berries harvested from two-year old plants of the new varieties compared with the standard varieties ripening at the same time (grams per 100 plants).

Varieties	Weight
PRECOCE DI ROMAGNA	38,080
ROSSELLA	43,185
ISABELLA	71,330
Senga Precosa	31,780
Pocahontas	38,780
Gorella	58,100
Regina	25,480
Surprise des Halles	49,630
Cambridge Vigour	37,870
Cambridge Favourite	37,590
Torrey	19,880
Talisman	16,100
Senga Sengana	15,050
TARDIVA DI ROMAGNA	68,000
Madame Moutot	12,460
Souvenir de Charles Machiroux	23,800

The new varieties have been selected from among over than 5,000 seedlings. They were only introduced after their performance had been compared with more than one hundred standard varieties. Nevertheless, we recommend they not be adopted on a large scale until tested on a trial basis, keeping in mind that strawberry varieties usually respond differently to different ecological conditions.

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Trees of 200-Year Old Newtown Apple Cultivar Found Free of Commonly-Occurring Viruses

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The means by which viruses are disseminated must usually be determined by planned experiment. However it is often possible to gain knowledge of the patterns of spread, and the extent of such spread, by orchard surveys and by sample indexing of trees in commercial plantings. The rate at which new cultivars become infected provides useful evidence. The persistence of freedom from virus infection in older cultivars has comparable significance.

A recent determination that two trees of Newtown apple are free from detectable virus infection, offers interesting circumstantial evidence that orchard spread of viruses in apple must be uncommon, because this cultivar has been commercially grown in North America for more than 200 years.

Orchard surveys in Europe (3) have shown that the proliferation disease spreads at appreciable rates. Several workers have demonstrated that viruses spread between adjacent trees in orchards by natural root grafting (5). We have encountered such spread in experimental plantings at Summerland. We are aware of no planned experiments or survey data in North America that have provided conclusive evidence of tree-to-tree spread

by means other than root grafting. Only two viruses, tobacco mosaic virus (4) and tomato bushy stunt virus (1) have been experimentally transmitted through apple seeds.

Nevertheless, some indications of natural spread of viruses in apple plantings have been recorded (5). Moreover, the results of apple virus indexing in most countries where such indexing has been conducted, have demonstrated high levels of incidence of viruses such as those causing stem pitting, rubbery wood, chlorotic leaf spot, apple mosaic, Spy epinasty and brown line decline (stem grooving). At Summerland, in an indexing program designed to identify clean clones of commercial cultivars and hardy frameworks, over 75 percent of all clones indexed have proved to be infected, most of them with two or more viruses. Almost invariably, the cultivars that are free from infection have been relatively recent products of breeding programs (e.g. Haralson, Jubilee, 0-271, 0-292, Spartan, Stirling, Summerred) for which budwood has been available from the original seedling or from first propagations. Among improved "strains" of standard cultivars originating in the United States and Canada as red or spur sports, all those tested are infected with three or

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