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**A comment on the color forms of *Frankliniella schultzei*  
(Thysanoptera: Thripidae) in relation to transmission  
of the tomato-spotted wilt virus**

*Frankliniella schultzei* (Trybom) has been known to transmit the tomato-spotted wilt virus in South Africa, Australia, and South America. This species was previously called *F. lycopersici* Steele in Australia, and *F. paucispinosa* Moulton in South America. Recent synonymies of *schultzei* discovered by Mound (1968: 39) include *interocellaris* Karny, *sulphurea* Schmutz, *delicatula* Bagnall, and *dampfi* Priesner. The first species is brown to dark brown as *schultzei* is, but the last three species are yellow. Since no other morphological difference was found between both color groups, Mound considered them to be different color forms of a single polymorphic species, *F. schultzei* (Trybom).

The dark form is distributed mainly south of the Equator; in Africa, from south of the Sahara and Sudan to the Cape; India; western Pacific-Australia, from the Philippines through New Guinea to the south shore of Australia; South America, from the Caribbean shore in Colombia to Buenos Aires and probably a little further south in Argentina. The pale form is distributed mainly north of the Equator; in North Africa including Egypt-Sudan-Uganda-Kenya; Near East; Indo-Malay-Papua-Oceania, including Hawaii. Both color forms seem basically allopatric in distribution, but have been known so far to make contacts in India, probably in the Philippines, in New Guinea and probably northern Australia, and in Sudan-Uganda-Kenya, where mixed colonies of both color forms were often found on some host plants (Mound 1968: 39).

In North America the same virus is transmitted by either the dark or pale form of another polymorphic species, *Frankliniella occidentalis* (Pergande) (Sakimura 1962). The two color forms are sympatric in distribution and interbreed freely, and the intermediate form is common. They are both arrhenotokous-parthenogenetic (virgin females produce only male offspring; mated females, female offspring), and body color expression is both sexually limited to females, and males are both pale (Bryan & Smith 1956).

Males of the two color forms of *schultzei* are, however, different in color, and the body color expression seems not to be sex-limited, contrary to the case of *occidentalis*. Although the dark form of *schultzei* transmits the virus, the pale form probably does not. *Sulphurea* was conclusively demonstrated to be a non-vector of the virus, when samples from populations present in Hawaii were tested with locally available strains of the virus (Sakimura 1946). To verify this inability of the pale form through its entire distribution, more testing should be conducted at some other localities.

It should be an extremely interesting research project to determine how much further the color forms of *schultzei* are different from those of *occidentalis* in genetics, type of reproduction,

and inheritance of the vector-ability, if interbred. Among the areas where both color forms make contact, India is the only area where presence of the virus was on record, although this needs confirmation (Choudhury 1954; Sakimura 1956). Sudan-Uganda-Kenya appears to be an ideal area to do the experiments, but the virus is apparently missing there. This note is aimed to stimulate interest of entomologists in the areas where the experimental materials are locally available.

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