

INDEPENDENCE OF PATTERN AND COLOUR GENES AND
RECOMBINATION FOR NEW PATTERNS IN A MANTECA X COSCORRON
FAMILY

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Manteca beans with plain lemon yellow testa colour and a matt surface, but having a faint bluish colour in the corona, were crossed with a Coscorron breeding line derived after many generations of selfing, from a population, code Al-10-M, originally created by Victor ALAMOS in Chile. The Manteca parent is extremely early maturing and has a stiff upright determinate habit. The Coscorron is a late maturing Type 2 bush. The Manteca parent has green pods, the Coscorron parent brilliant plain red pods. The objective is to create new erect, early upright Coscorrons, but the cross provides opportunity to begin to investigate the relationships between colour PATTERN control and the control of chromophores (flavonol glycosides and anthocyanins) in testas and pods.

From the cross "striped yellow-on-white" X "plain yellow" one obtains, by F₄, segregates from full white through faint yellow striped and faint yellow mottled to heavier stripes and heavier mottles and finally again to plain yellow. This appears to represent recombination within the "complex locus" as described by Prakken. The plain white segregants appear to be white because of a "pattern" which is extreme in having no areas where the yellow is expressed. No anthocyanic colour occurs in the testa except in the corona area where a wide range of extent of colour is found, including a fine dotting of colour in some rare segregants. In the pods there is also a diversity of expression of red between the fully green pods of the Manteca parent and the full red of the Coscorron. Variation, as with the testa patterns, appears not to be continuous but to have different levels such as faint red striping, faint red mottle, dark red mottle and full solid red.

The genetics of these segregations appear to be open to study. Present and further data will be examined in due course. Meanwhile, I draw attention at the phenomenological level, to what appears to be a fruitful field for study in greater depth.

Seed shape also shows remarkable diversity. The Coscorron parent has seed in shape like a large sized Pinto or Great Northern. The Manteca parent had smallish oval seed. There appear from observation only, to be strong associations between seed shape and plant form among segregates. Notably the segregants with Pinto/GN shaped seed nearly all have indeterminate bushy habit just as in those classes and in the Coscorron parent. The determinate-flat seed is the hard to get rare recombinant. There is scope here for far more interesting man hours of investigation than the present writer may have available.