

----- INTRODUCTION. -----

Very little previous work has been done upon the genetics of *Stizolobium*.

J. Belling has investigated the inheritance of semi-sterility in the genus.

It was decided at the Imperial College of Tropical Agriculture to undertake an investigation with a twofold object.

1. To find out whether the inheritance of certain characters is determined by Mendelian rules.

2. To select suitable homozygous strains that turn up in the work, with a view to improving the plant when used as a cover crop.

The work was started in 1924 by Mc Kinstry who made the following crosses:-

1. Chinese Velvet x Bengal bean
2. Chinese Velvet x Yokohama Velvet
3. Chinese Velvet x Tracy Velvet
4. Chinese velvet x Osceola
5. Florida Velvet x Tracy velvet
6. Bengal bean x Bush velvet.

Crosses No. 3, 5, and 6 were carried on into F₂.

The work was taken over at this stage by the writers.

It was decided to investigate the inheritance of the following characters:-

No. 3 cross. Chinese x Tracy.

Flower colour

Colour of hairs on growing point.

Character of pod hairs; "whether"stinging" or "velvet"

Colour of hairs on pod.

Presence or absence of a pattern on the cotyledons.

No. 5. Cross. Florida x Tracy.

Presence or absence of a pattern on the cotyledons.

No. 6. Cross. Bengal x Bush.

Habit, whether determinate or indeterminate.

Colour of hairs on growing point.

Character of pod hairs.

Colour of hairs on pod.

Owing to the limited amount of labour and land it was decided to carry on into F.3 a large number of families from the Chinese x Tracy cross, very few of Florida x Tracy and very few Bengal x Bush.

The choice fell upon Chinese x Tracy as the main cross upon which to work for several reasons.

1. There were only three families in F.2
2. The sterility was less than in the Bengal x Bush cross.
3. Another easily observed ^{CHARACTER} ~~cross~~ was available, namely, flower colour.

This thesis is based upon the work done upon the Chinese x Tracy and Florida x Tracy crosses. It was not thought advisable to incorporate the results obtained from the Bush and Bengal cross as so few families could be taken into F.3. The recorded results are available to assist in future work and are presented in the form of a short appendix.

The following abbreviations will be used throughout the paper:-

- C.T equals Chinese x Tracy
- F.T " Florida x Tracy
- B.V " Bush x Bengal