

**Heterosis manifestations and depression
by survival and larval duration of
Bombyx mori L. hybrids reared with
artificial diet**

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Studying of *Bombyx mori* L food habits is one of the main factors related to productivity of the species, increasing the number of yields per year and the distribution area.

In the area of application of artificial food for silkworms the issue of determining the susceptibility to artificial diet feeding of *Bombyx mori* L. breeds and hybrids and the creation of forms adapted to raising with artificially prepared food can be pointed out as the main one, which focused our efforts to the objective of the present study.

PURPOSE AND TASKS

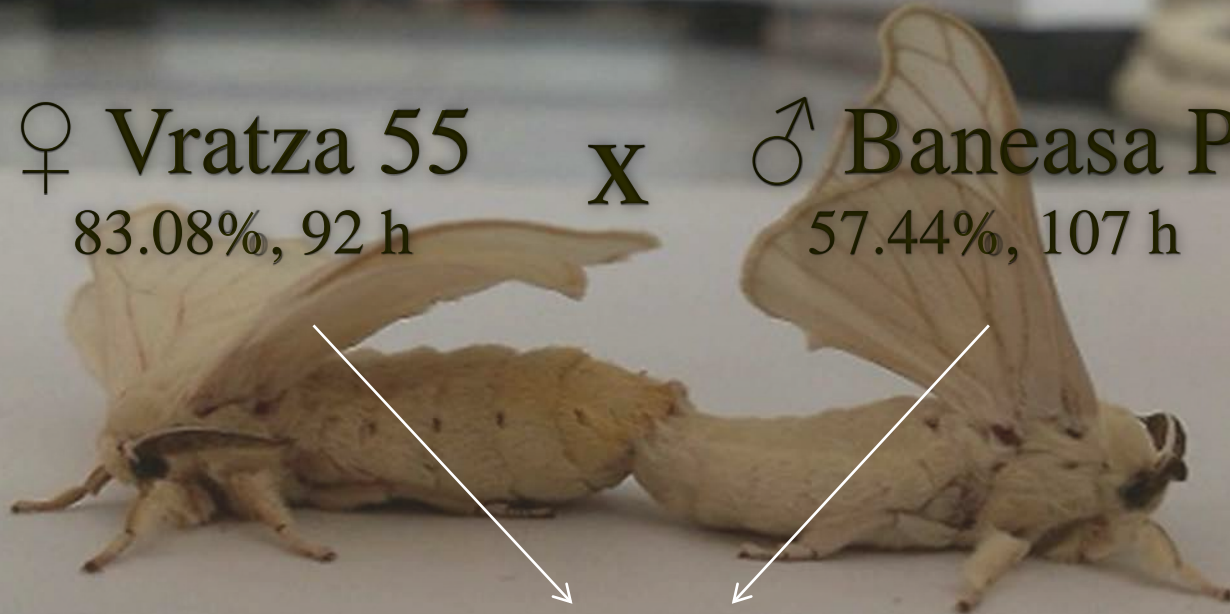
- Testing of *Bombyx mori* L. hybrids and their parental forms with artificial diet with a reduced content of mulberry leaf powder (15%).
- Establishing the degree and the character of heterosis (compared to higher parent value /HP/ and mean parental value /MP/) on the traits survival and duration of development in F1 hybrids of *Bombyx mori* L.
- Establishing the degree of inbreeding depression at the analyzed traits in F2 hibryds.

MATERIAL AND METHODS

♀ Vratza 55
83.08%, 92 h


×

♂ Baneasa P
57.44%, 107 h




Vratza 55 x Baneasa P

MATERIAL AND METHODS



- 250 g dry substance + 675 ml of distilled water



- Homogenizing mixer and filling with a layer thickness of ~ 2 cm

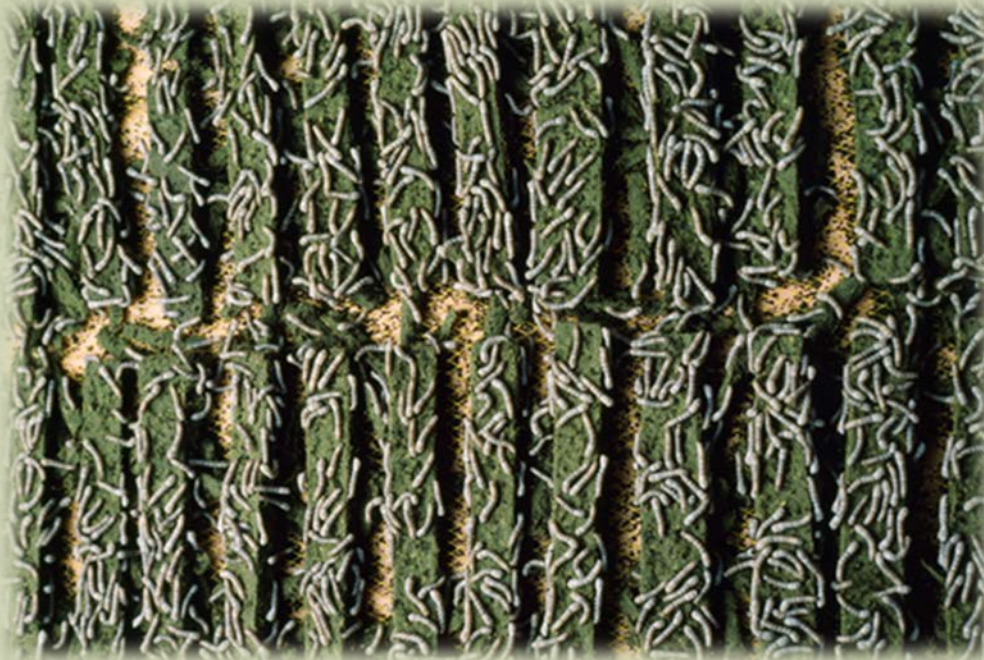


- Heat treatment in MW for 10 min at ~ 800 W



- Shock cooling with water and ice

MATERIAL AND METHODS



Feeding:

I meal → immediately after the mass hatching of larvae;

II meal → on the third day of the first instar.

MATERIAL AND METHODS

Heterozis (Kremky, 1970)

• compared to HP

$$HP = \frac{F_1 - HP}{HP} \times 100 (\%)$$

compared to MP

$$MP = \frac{F_1 - MP}{MP} \times 100 (\%)$$

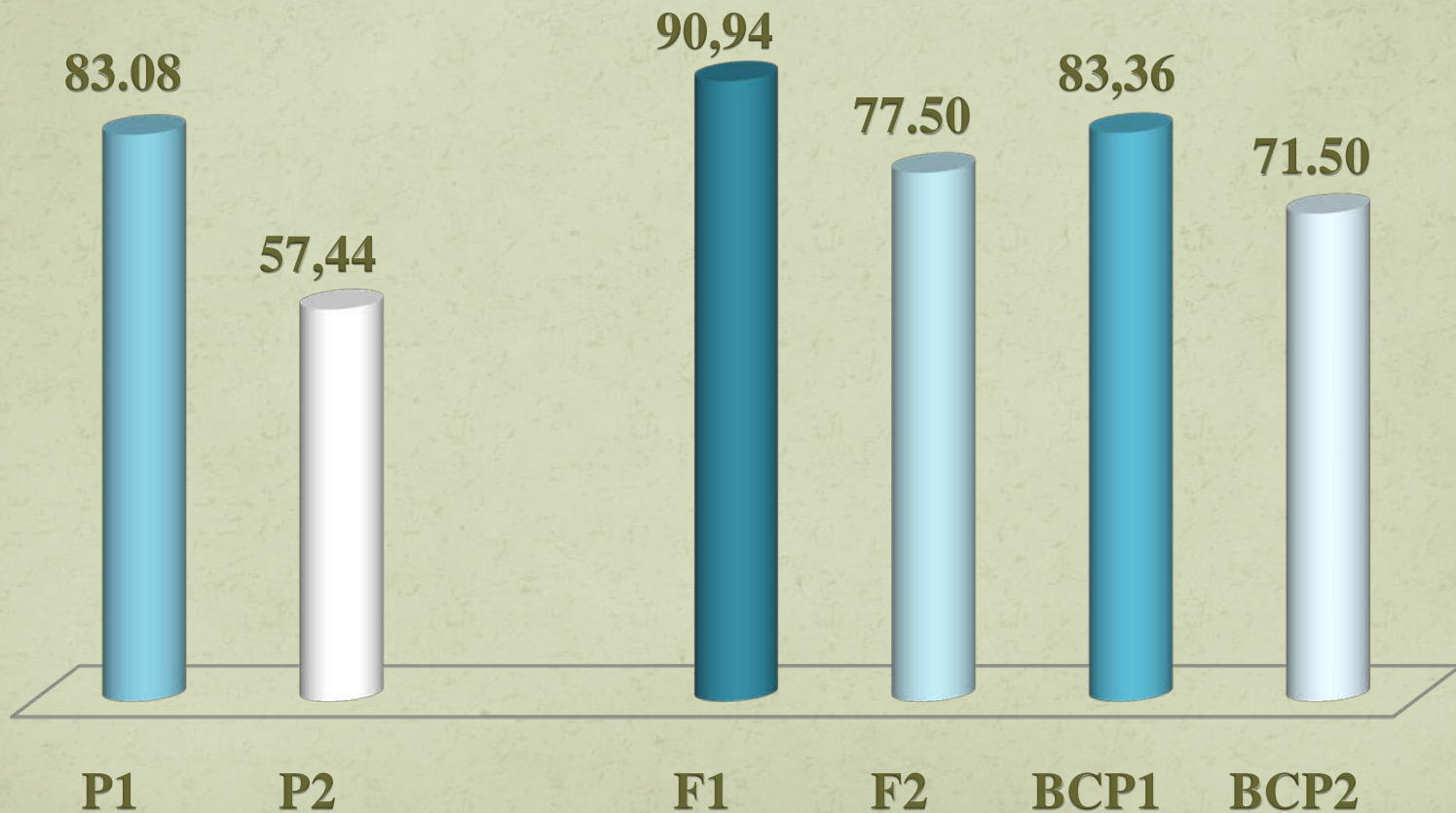
Depression (Omarov, 1975)

•

$$\frac{F_1 - F_2}{F_2} \times 100 (\%)$$

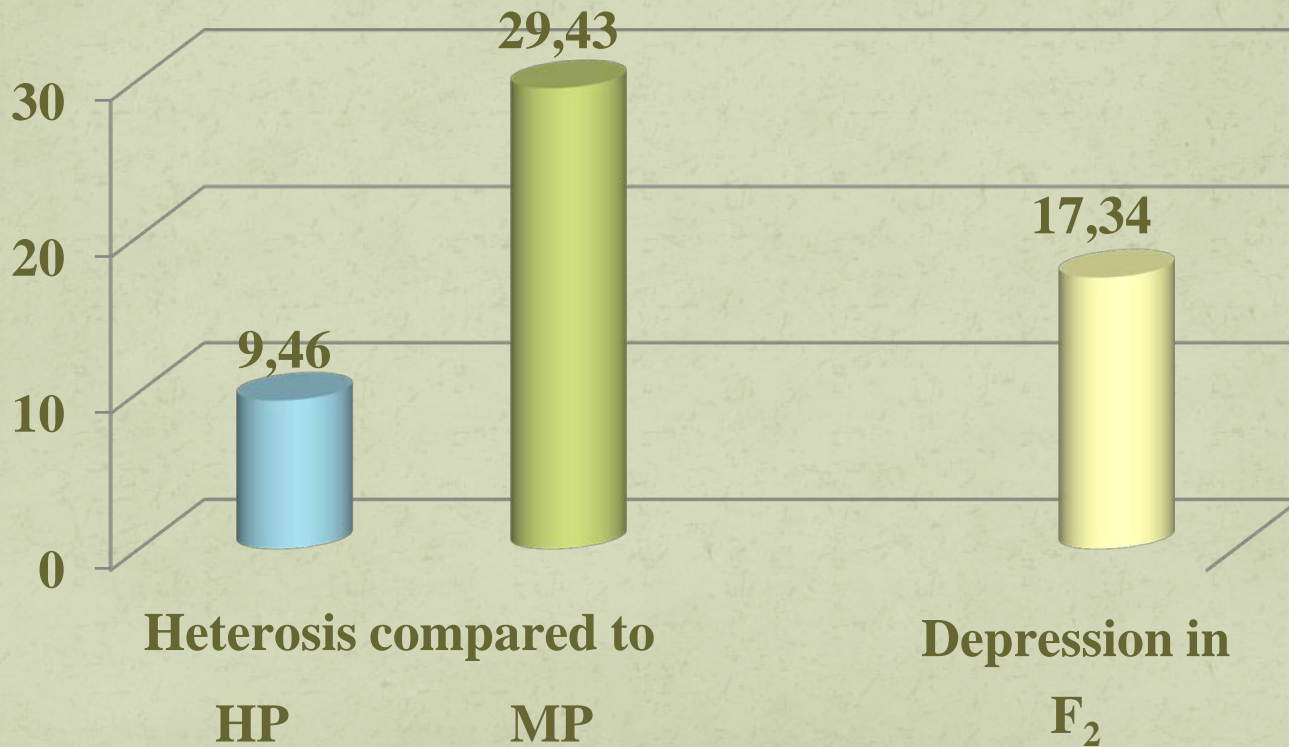
RESULTS AND DISCUSSION

Survival of hybrids and their parental forms (%)



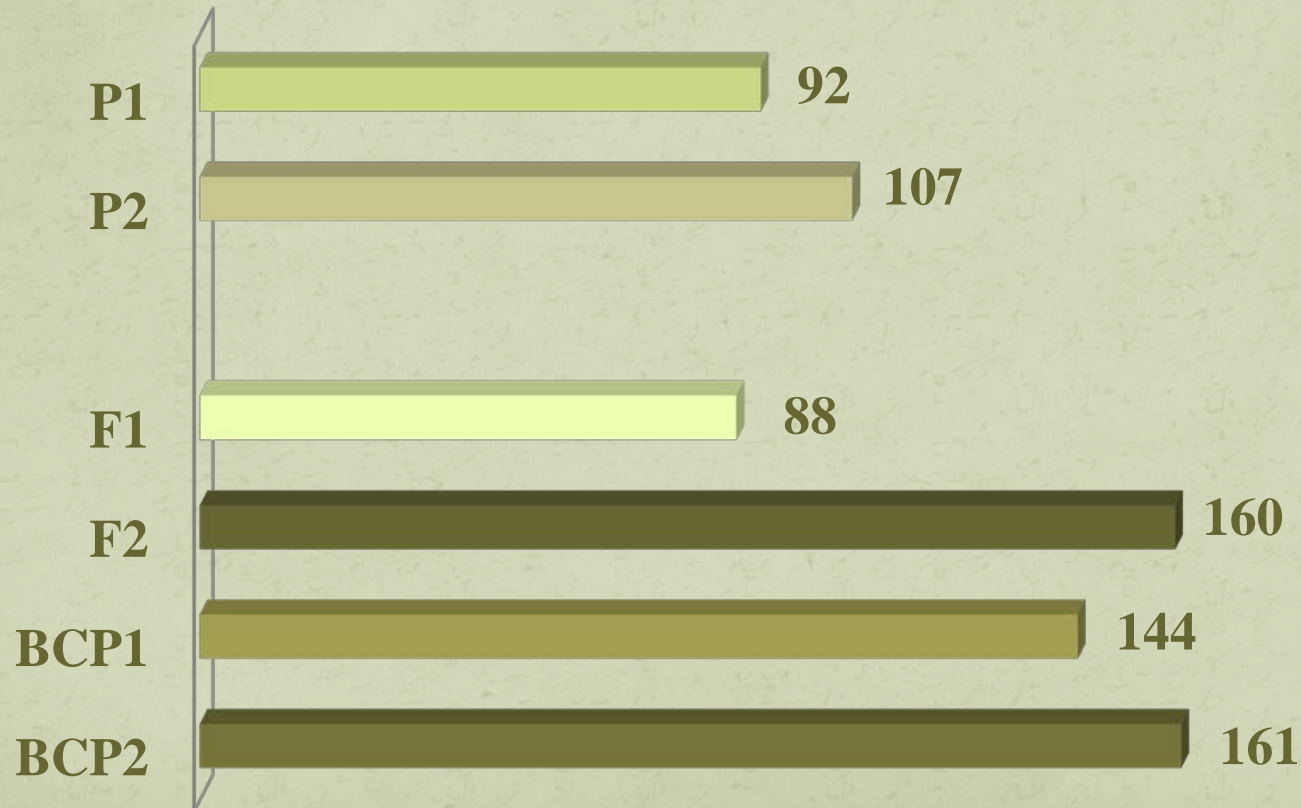
RESULTS AND DISCUSSION

Heterosis manifestations and depression by survival



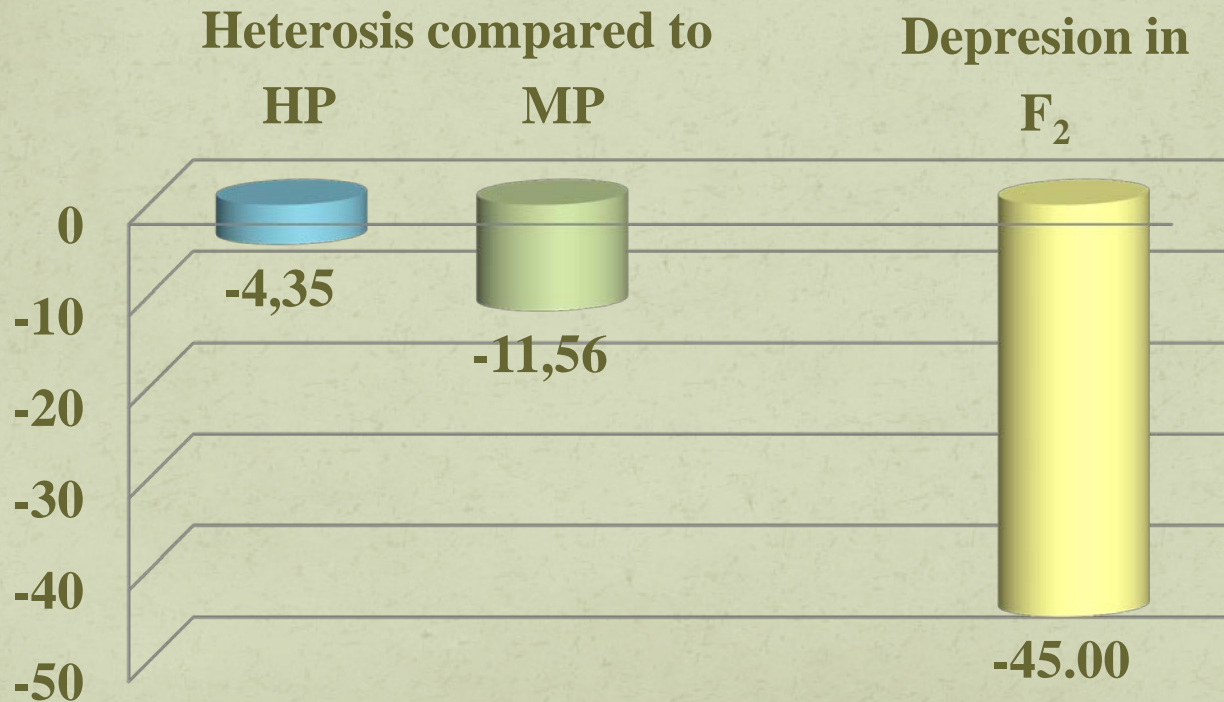
RESULTS AND DISCUSSION

Development duration in hybrid generations and their parental forms (%)



RESULTS AND DISCUSSION

Heterosis manifestations and depression by development duration (%)



CONCLUSION

- The results obtained (90.94% survival and 88 h duration of larval development in the first instar) showed that the hybrid 'Vratza 55 x Baneasa P' had high degree of susceptibility to artificial diet with reduced content (15%) of mulberry leaf powder.
- Better results were observed in the back cross form with the participation of breed "Vratza 55" as a donor.
- The tested hybrid manifested heterosis for the both analyzed traits in F₁, as in relation to the mean parental value /MP/, so and to the parent with higher value /HP/.
- The heterosis manifestation in F₁ was related to depression in F₂ for the both analyzed traits.



Thank you for the attention!