

GROWTH OF ACHENES IN TWO SUNFLOWERS HYBRIDS UNDER LIMITED IRRIGATION CONDITIONS.

V. Abbate and S. Foti, Istituto di Agronomia generale e Coltivazioni erbacee, Università di Catania, Italia

In a trial carried out in south-east Sicily the effects of two applications of water on the morphology and weight of the head and on growth of the achenes were studied. The irrigations were carried out around the phases of head visible and of anthesis using on the whole  $800 \text{ m}^3/\text{ha}$  of water.

The trial was carried out on two hybrids, Romsun Hs 90 and Stromboli, medium-early and late respectively, in two neighbouring fields of which one was irrigated and the other left dry. The experimental scheme adopted for each field was that of randomized block with four replicates. During the maturation of achenes 11 samples of 5 plants/plot were taken for each cultivar from 15<sup>th</sup> to 20<sup>th</sup> July for Romsun Hs 90 and from 26<sup>th</sup> June to 30<sup>th</sup> July for Stromboli.

This method of research enabled us to verify when and which components of production of achenes were affected in relation to the irrigation carried out.

The effects of irrigation on Romsun Hs 90 were only evident about 20 days after complete anthesis and hence, after having carried out the second irrigation. From that date, in comparison with the dry field, irrigation gave rise to increases which at the end of cycle resulted 30% in thickness and 82% in surface area of the head, 38% in weight of the achenes and 75% in yield (58 compared with 33 g/plant).

Stromboli was not affected in the same way. This was probably due to the later biological cycle of this cultivar which caused the last phases of maturation of the achenes to occur about 30 days after the last irrigation, and in a period during which maximum temperatures frequently ranged between 35 and 40°C.