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REPORT ON THE ACTIVITIES OF
SECTION II

Dear Chairman of the Conference and
Members of the Presidium.

Dear Comrades, Ladies and Gentlemen.

On behalf of the Presidium of Section II
let me present you a brief report on the acti-
vities of the Section which discussed manage-
rial practices, chemical means, irrigation, plant
protection and mechanization all in relation to
sunflower cultivation.

At the Section we have heard and discus-
sed 49 reports from 12 countries including 24
reports from the Soviet Union, 9 reports from
Yugoslavia, 5 reports from France, 2 reports
from Romania and Poland each and report from
Bulgaria, Hungary, Austria, Canada, Spain,
Egypt and Kenya, each.

14 reports dealt with managerial practices
and irrigation, 18 reports were on fertilizers,
herbicides and dessicants, 12 reports were on
plant protection and 5 reports were on mecha-
nization.

Three reports (from Spain, France and
USSR) were included in the programme of the
Section additionally, with the consent of the
Organizing Committee.

Thus, the Programme of Section II has
been fulfilled fully.

The reports on managerial practices paid
considerable attention to the principal and pre-
sowing soil cultivation including fields affected
by wind erosion, as well as sowing dates,
plant densities, plant maintenance and other
problems (USSR, Poland, Kenya), and to the
improved cultivation of sunflower hybrids (Ro-
mania).

The need was noted to intensify research
into the weeds control in the system of the

main and pre-sowing soil treatment, considering a reduced number of technological operations.

It was noted in particular, that on chernozem soils the elimination of early spring soil treatment creates better conditions for weed emergence and their further elimination by pre-sowing cultivation.

Serious attention should also be paid to the differentiation of sunflower plant densities depending on the soil moisture reserves, since the proper utilization of this method alone can considerably increase seed yields.

Seven reports dealt with herbicides utilization. Reporters stated that weeds make tremendous damages to sunflower crops. The problem of weed elimination is far from being solved. The reports presented results of studies to search for new active and safe herbicides, utilize combined herbicides in order to widen the spectrum of their effect, and to improve the technology of sunflower production on the basis of highly effective herbicides. In particular, considerable interest was evoked by the Soviet authors' report on the new technology of sunflower cultivation with the help of herbicides, which allows to obtain high and stable seed yields without hand labour and to reduce the number of mechanical treatments of soil during spring and summer (from 8-10 to 2-4 operations).

Twelve reports were devoted to different aspects of employing mineral fertilizers on dry land and under irrigation and to their effect on the agro-chemical properties of soil and its micro-biological activity.

Reports on the increased rate of utilization of nutrients by sunflower through locating the fertilizers in the root system's active zone were also rather interesting.

Particular interest was evoked by a Soviet author's report on a considerable increase of yielding capacity as a result of the seed en-

charcoal rot (*Sclerotium bataticola* Taub.), Sclerotinia (*Sclerotinia sclerotiorum* Lib.), grey rot (*Botrytis cinerea*), dry rot (*Rhizopus nodosus* Nam.), and *Alternaria* (*Alternaria tenuis* Nees.). The areas of the most intense distribution of these species depend on the peculiarities of agro-climatic zones of the country concerned.

The reports largely contained the information on the specific composition of pathogens and predators, their geographical distribution in certain countries and their biological properties. Unfortunately, there was scarce information concerning the practical means of control, the development of new agrotechnical, biological, chemical and other means and methods to reduce the number of predators and pathogens.

Five reports were heard on the mechanization of sunflower cultivation. They discussed the employment of harvesting and post-harvesting machinery, and its improvement. The reports pointed that seed drying is instrumental in preserving seed and oil quality. Unfortunately, only one report (from France) dealt wholly with this problem, which shows that the problem has so far received little attention.

Drawing on the reports heard and on their discussion. The Presidium of Section II believes that Soviet sunflower varieties and sunflower hybrids developed in different countries possess the yield potential at the level of 35-45 c/ha under favourable conditions of cultivation.

However, UN statistical data show that for the past five years the mean yield in Europe has not been more than 12-14 c/ha, in North America - 10-12 c/ha, in South America - 6-8 c/ha, and in Asia and Africa - 4-7 c/ha. These data show that world sunflower production is largely influenced by factors that block a full utilization of the potentialities of modern varieties and hybrids under the existing cultivation techniques.

Undoubtedly, the amount of yield greatly depends on a number of factors associated with ecological conditions and production technology.

In the regions with abundant precipitation during sunflower vegetation diseases represent the main factor behind reduction of yields. The relevant studies show that sunflower yield is 15-40% less due to diseases, depending on the season and ecological conditions.

In zones with insufficient precipitation the crop's potentialities are not utilized due to draught and specific diseases.

And at last, the managerial practices may also contribute to the reduction of yields.

Having analysed the factors reducing the yielding potentialities of sunflower the Presidium of the Section deems it necessary to suggest the following to the plenary session:

1. Considering that sunflower diseases drastically reduce yields, the breeders, geneticists, phytopathologists, physiologists and other specialists must develop varieties and hybrids resistant to the major species of diseases for different agro-climatic zones.

2. It is necessary to develop varieties and hybrids resistant to soil and aerial draught, because sunflower is largely cultivated in such zones.

3. In as much as there is a problem of food shortage in the world growing importance attaches to the problem of increasing the output of edible vegetable oil. The Presidium considers it necessary to develop varieties and hybrids with the potential yielding capacity of over 50 c/ha.

4. The Presidium draws the breeders attention to the desirability of developing varieties and hybrids with a stalk height not over 180 cm, with a small leaf area and a high photosynthetic productivity. This will allow to grow sunflower at higher densities. Studies have shown that plant density is the main factor in production technology. High yield, about 50 c/ha, is more easily obtainable at higher density than

at higher productivity per plant.

5, Studies of sunflower mineral nutrition have solved the problems of quantity, relationships, means and dates of administering fertilizers. Meanwhile, some fundamental problems of sunflower nutrition regime still await solution; there is no answer to the question - why is sunflower less responsive to fertilizers than wheat, maize, sugar beat and other crops. The Presidium believes that to obtain a yield of about 50 c/ha it is necessary to widen the research in this field in every ecological zone.

Thank you for your attention.