PROTECCION

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During the course of four sessions at the IXth International Sunflower Conference, a total of 31 papers were presented. One dealt with bacterial diseases, one with virus, four with broomrape, and 24 with fungal diseases.

While every paper was a real contribution, particular attention is called to several.

- 1) Seedborne sunflower downy mildew can be effectively controlled by treatment with the systemic fungicide Metalaxyl, thus preventing serious yield losses in the field. As a seed treatment, Metalaxyl may have use in reducing the danger of downy mildew introduction into new areas or into other countries. Repeated, wide use of the chemical, however, may lead to development of resistant strains of the pathogen.
- 2) Control of Sclerotinia diseases due to ascospore or to mycelial infection is offered by breeding for increased resistance, weed control, fungicide treatment, and increased plant spacing. Meteorological studies indicate the possibility of forecasting outbreaks of ascospores, thus allowing timely control by chemicals and timely planting of the crops. Resistance to ascospore and mycelial infection is suggested to be based on different factors.
- 3) Control of charcoal rot (*Macrophomina phaseoli*) by breeding for resistance appears to be a possibility.
- 4) Broomrape has been well documented to occur as races, and at least 7 races are suggested to occur in Eastern Europe. Sets of differentials have been developed in Rumania and Yugoslavia. Isolates of the M-group of races (highly virulent) have been shown to occur also in Spain, while other isolates of the M-group were known to occur already in Eastern Europe. Collaboration between scientists is encouraged in order to develop a common set of differentials for completerace identification.
- 5) Useful methods to screen for resistance to Phoma Black stem were reported.

- 6) Studies indicate that cultivars resistant or susceptible to *Verticillium dahliae* may both produce seed infected by the pathogen. Interaction between cultivar and isolate was indicated.
- 7) A virus disease diagnosed in Argentina is a cause of concern, because of its high (10-12%) incidence in fields.
- 8) Bacterial diseases and their insect vectors were shown to be of concern in Mexico.
- 9) A contribution from Yugoslavia stressed the importance of close cooperation between breeders and pathologists in developing superior cultivars.

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