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EB.AIR/WG.1/R.90  
28 April 1993

Original: ENGLISH

Executive Body for the Convention on  
Long-range Transboundary Air Pollution

Working Group on Effects  
(Twelfth session, Geneva, 6-8 July 1993)  
Item 4 (d) of the provisional agenda

INTERNATIONAL COOPERATIVE PROGRAMME  
FOR RESEARCH ON EVALUATING EFFECTS OF AIR POLLUTANTS AND  
OTHER STRESSES ON AGRICULTURAL CROPS

Progress report by the secretariat

1. The present note summarizes the progress made in the implementation of the programme since the eleventh session of the Working Group on Effects.
2. The sixth meeting of the Programme Task Force was held from 10 to 12 February 1993 in Lökeberg (Sweden).
3. The Task Force considered the results of the 1992 programme (repetition of the 1991 experiment with an improved protocol) carried out by fourteen Parties.

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4. The clover (*Trifolium subterraneum* cv Geraldton) and beans (*Phaseolus vulgaris* cv Lit.) as well as other locally important cultivars of beans were used to investigate the effects of ambient concentrations of ozone ( $O_3$ ) and to identify critical levels of air pollution exposure. Half of the plants were protected against  $O_3$  injury with the antioxidant ethylene diurea (EDU),

whereas the other half was untreated.

5. The review of results from the 1992 experimental season led to the following conclusions:

(a) Visible injury on beans and clover occurred at experimental sites with seven hours mean ozone concentrations above 35 ppb;

(b) While the ethylene diurea (EDU) treatment for ozone protection proved to be positive in most cases and neutral in others, no negative effects were observed due to its use;

(c) The EDU protection effect seemed to disappear at ozone concentrations above 100 ppb. This finding raised questions about the use of increasing EDU concentrations, especially in areas of high ozone concentration (e.g. the Mediterranean).

6. The Task Force proposed that the 1993 experimental programme should include:

(a) An assessment of visible injury to beans and clover in relation to ozone exposure;

(b) The implementation of the standard protocol for EDU treatment for beans and clover;

(c) Studies using open-top chambers, the exposure of other economically important crops and the development of resistant cultivars as indicator species for a possible future alternative to EDU treatment.

7. The Task Force also proposed amendments to the aims and objectives of the International Cooperative Programme to ensure that it contributes efficiently to the implementation of existing protocols, and/or the development of future protocols. To this end the Task Force agreed that the programme should:

(a) Review the existing data so as to produce updated values for the determination of the critical level of ozone in relation to the VOC Protocol, using the approach formulated in the mapping manual;

(b) Experimentally assess the validity of the proposed critical levels to be used for elaboration of relevant maps; and

(c) Include studies on crops which are of particular importance in southern and eastern Europe, thus contributing to the preparation of European crop critical levels maps.