

Interpretation of Plant Growth Responses to Chemicals

Bruno Würzer

BASF Aktiengesellschaft, Landwirtschaftliche Versuchsstation, D-6703 Limburgerhof

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While searching for chemical compounds with herbicidal or growth regulating activities the researcher gladly notices if intact plants respond to the treatments at all. By means of colour slides, which unfortunately could not be printed here, changes in plant growth and leaf colour induced by chemicals were demonstrated as they usually occur in an industrial screening operation. The range of symptoms shown in the presentation included simple lethal necrosis, "bleaching", increased generation of anthocyanins, deterioration of the plant tissue, control of axillary buds, the prevention of resprouting, stunting of the shoots, and epinasties. Chemical compounds synthesised in the BASF laboratories and commercial products were applied.

The purpose of the presentation was not the explanation of the mode of action or any other physiological viewpoints. However, the objective was to find out if those observations might lead to the solution of problems in agriculture or in landscaping. Important weeds like *Echinochloa crus galli* L. Beauv., *Galium aparine* (L.), *Ipomoea* spp., *Cyperus esculentus* L., and *Sorghum halepense* (L.) Persoon were discussed for they urgently need to be controlled. Tomatoes and carrots on the other hand are useful indicators for growth regulating substances. Peppermint and azaleas allow conclusions with regard to the possible modification of the growth of trees and brush. Again the evaluator

recalled the brush control in rangelands. He simultaneously pointed to the regulation of cotton plants, and their fruiting habit. Examples were given for outstanding chemical interactions. Mixtures consisting of 3-isopropyl-2,1,3-benzo-thiadiazinon-(4)-2,2-dioxide (bentazon) and N-[2,4-dimethyl-5-[(tri-fluormethyl)sulfonyl]amino]phenyl]acetamide (me-fluidide) generate synergistic effects. Combinations of herbicidal thiocarbamates or acetanilides with dichloroacetamides display antagonistic activities in maize.

It is hoped that the changes in test plants induced by new chemical compounds are correctly interpreted by the evaluators. A few of the compounds eventually may be developed in ways useful both for commercial purposes as well as in the plant sciences.

Reprint requests to B. Würzer.

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