

STANDARDIZATION OF SUNFLOWER VARIETY TRIALS

By

Dr. J. R. Jensma
Unilever Research Laboratory
Valaardingen/Duiven
Zevenaar, The Netherlands

Variety trials with sunflowers are conducted in many parts of the world. In fact, they are usually the first type of trials performed when experiments with the crop are started. This is understandable as the choice of variety is very important: uniformity and oil content depend very strongly upon the variety and both are essential characteristics.

The value of variety research could be greatly enhanced if the results of the trials were directly comparable. This, however, is only seldom so, because each experimenter has his own methods of observation and recording. It therefore seems a task for this conference, with such a wide international membership, to try to bring some uniformity into the testing methods.

I will make a rather detailed proposal as to how, in my opinion, variety trials should be conducted in the future. My proposal is by no means a definite one, but is intended to stimulate the discussion so that by common participation we can find the most practical solution. First I suggest that 3 to 5 institutes are appointed as central agencies. The task of these agencies would be twofold: to distribute the seed and to collect and process the results. For the 1970 season I think we could appoint one institute for North and Central America and one for Europe, whilst in the near future South America, Africa and South Asia should also have such an agency.

Breeders who wish to have their varieties tested should send their seed to one or all of these agencies, who should exchange their information and report at the Conference. An important part of the central agencies' job is the analysis of the seed when received. The climate is known to have a marked influence upon oil content and, by having the seed analysed before sowing, we would at least know the level of oil achieved by the breeder under the conditions at which he has been working. The same agency should also analyze the seed after harvest so that a full picture is obtained. The importance of this point cannot be overemphasized: oil content is a key factor and a variety trial is useless if this is not taken into account.

The advantages of this procedure is obvious. As things stand, oil content is often mentioned without reference to moisture content; in other cases oil content may be based on dry matter or on a moisture content of 5 or 10%. This can all be avoided if the oil determination is done in central, well equipped laboratories who have standardized their methods. The same applies of course to many other analyses, such as husk, protein and linoleic acid. The agronomic testing is not usually the major problem: the bottleneck is the chemical analysis, particularly in developing countries where the need for adequate information is largest.

The next step is to standardize the methods of agronomic testing. We know that seed quality depends strongly on density. This means that, if trials are to be fully comparable, the same plant density should be used in all cases. We also want to know how early a variety is and, to establish this, we must include one and the same standard variety in all trials. We can express earliness as the number of days difference between the dates of 50% bloom for the test variety and the standard. A very uniform variety, preferably a hybrid should be taken as the standard, and we should agree which hybrid this should be. Use of such a standard would have many more obvious advantages.

Another problem is the naming of varieties. We have found that there is a great confusion in this respect, several different varieties being available under the same name. The breeders are hardly aware of this because in many cases they do not know what a variety should be like.

This brings me to my last point. The sunflower is a new crop and commercial plant breeders outside the Eastern European countries are only just becoming interested. Often it is far from easy to obtain seed of a specific variety in commercial quantities. At the same time a number of hybrids are being introduced, the seed of which will remain very scarce for some time to come. I think therefore that this is the time to tackle the problem, for the benefit of both the farmer and the breeder.

I kindly invite the reactions of those who are interested in this proposal, so that we can meet one another and work out all the details. I also invite the breeders to help us because without their cooperation this will certainly fail.

* * *