

Rapporteur's Notes

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The apparent positive correlation between resistance and some physiologic features of plants, such as maturity type, was stressed. It was felt that at present, the relationship of resistance and late maturity has not yet been studied in sufficient detail at the molecular level. More research is needed to elucidate the influence of physiologic conditions on the expression of resistance.

Studies of epistatic interactions between resistance genes identified through genetic mapping are still in the beginning stages. Diploid segregating populations appear to be best for these studies, which will be the next step in resistance QTL analysis.

It appears that molecular markers are specific for each genetic material in which they have been identified. The validity for detecting resistance in other, unrelated segregating progenies has to be confirmed prior to using any markers for selection. Emphasis was placed on the importance of obtaining more high-quality phenotypic evaluation data for use in genetic mapping studies.

The low resolution achieved by current phenotypic trait evaluation and resistance gene mapping techniques does not allow for identifying QTLs with very small effect on

resistance. The essential lack of well-defined genetic mutants in potatoes favors work with candidate resistance genes.

No agreement was achieved about the need for an international standard resistance testing protocol, employing the high biologic diversity of *P. infestans* present at Toluca, Mexico. Participants felt that resistance testing should be carried out under the local conditions where the corresponding breeding materials will be used.

The question was raised about when molecular biology techniques, such as transformation and selection assisted by molecular markers, could be expected to have a major impact on potato variety production and advancement. Should conventional potato breeding be continued? Despite the relatively short history of DNA technology development, there have been successes, but high expectations for the potential of transforming existing valuable varieties to increase their resistance may not be fulfilled completely.

Concern about the recent development of increasing intellectual property rights on genetically altered resistant potatoes was expressed.