

COMPARISON OF SEVERAL SEED VIGOUR TESTS
ON FIELD MAIZE

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Seed vigour testing has become an increasingly important component of seed analysis. Seed vigour determines the potential level of performance and activity during germination and seedling emergence. To be accepted by the seed testing community, a vigour test should be inexpensive, simple, rapid, related to field performance, objective and reproducible. Biochemical tests to determine seed vigour might be more reliable than seedling growth and stress tests. Results of such tests should be available in hours rather than days or weeks.

This study was conducted to determine some of the factors indicated above. The objectives of this study were 1) to test the content of Adenosine triphosphate (ATP) in seeds as a possible vigour test and 2) to study interrelationships among several seed vigour tests.

The results of this study indicated that ATP production in low vigour seeds was lower than in high vigour seeds. But, the ATP test did not evaluate seed vigour in different seed lots. However, ATP assay may be useful in the seeds using quick method for ATP extraction and ATP content should be determined on individual seeds rather than on bulk samples. Other vigour tests such as cold, emergence from soil, and growth rate showed better results than tetrazolium, and conductivity for corn. Results suggest that vigour tests are better indicators of probable field performance than viability tests.