IAEA
Atoms for Peace: The First Half Century
1957–2007

Enhancing genetic diversity in crops, Mongolia

The challenge…

The Plant Science and Agricultural Research Training Institute (PSARTI) of Mongolia aims to contribute to the sustainable development of the country's crop sector through a combination of research, education and production activities. This takes place within the framework of the government policy for agriculture development in Mongolia.

The institute focuses on soil conservation and fertility recovery, the development of superior new varieties with high yield and superior quality and their seed production, and the development of appropriate crop cultivation practices. In addition, PSARTI focuses on the safe conservation and sustainable use of plant genetic resources and the effective application of biotechnology for crop improvement programmes.

The project…

IAEA technical cooperation activities have focused on enhancing genetic diversity in wheat through the application of mutation techniques, with the aim of developing high yielding, drought and heat tolerant, disease resistant wheat varieties. Activities also aim to enhance the genetic diversity of crop genetic resources and initial materials for breeding, and to accelerate the breeding cycle.

Quantifiable data…

- 1982-1984: first IAEA project on mutation breeding. 10200 mutant progenies of spring wheat were released and the highly productive varieties Darkhan-35 and Darkhan-49 were developed.
- Plant breeding and genetics laboratory established in 1990.
- 1989-2002: 24 spring wheat varieties induced by gamma radiation and chemical mutagen NaN3. Spring wheat Darkhan-106 and Darkhan-141 were developed.
- 1500-1800 chemical induced mutant lines are developed and screened annually. At present 17 mutant progenies of spring wheat are being studied on breeding plots in different agro-ecological zones.

MON5/002: Mutation breeding, MON5/004 Plant nutrition and soil science , MON5/006: Application of nuclear technique for agriculture, MON5/008 Seed multiplication of new spring wheat varieties, MON5/009: Application of nuclear technique for yield improvement of wheat and legume crops, MON5/010: Development and application of Rhizobium bio fertilizer, MON5/014: Application of isotope technique for soil and plant studies, MON5/015 Implementation of the Fallout Radionuclide Technique for Erosion Measurement