

Fact Sheet

PLANT BREEDING STUDIES FOR STABILIZATION OF HIGH-USE TRAINING AREAS IN COLD REGIONS

PROBLEM

Military vehicular traffic destroys vegetation, which, in turn, leads to soil erosion, sedimentation of streams and lakes, loss of training realism, and reductions in the carrying capacity of the land. The objective of this project is to develop plant cultivars that are more resistant and resilient to military training impacts in cold regions.

SOLUTION

For plants to be successful colonizers on cold regions training lands, they must be able to tolerate poor environmental conditions (cold soils with low soil moisture and nutrient holding capacities) and soil compaction and wear from training exercises, and they must have rapid germination and establishment rates. The study sites present a range of environmental conditions: there are two arid sites (Fort Carson, Colorado, and Yakima Training Center, Washington) and one humid site (Fort Drum, New York). The plants being developed are expected to meet training mission needs and regulatory requirements for "native" and "introduced" species. Researchers involved in plant breeding studies are identifying existing site conditions and plants with desired characteristics. Seeds and plants of promising clones will be collected through 1995. The collected seeds will be germinated in the greenhouse and interpollinated with other promising clones to develop improved cultivars for reseeding sandy soils on the training lands. Appropriate plant mixtures for on-site seedings will be sown in demonstration plots during the spring and fall of 1995. This project is funded through the AT-25 and SERDP programs, Fort Drum, and FORSCOM. At Fort Carson and Yakima, we are cooperating with researchers from the USDA-ARS at Utah State University; the research at Fort Drum is being coordinated with Penn State University.

RESULTS

This research originated through earlier studies that CRREL conducted at Fort Drum to improve the germination and establishment of native American grasses. We have developed some promising plant materials that grow very tall and produce a great amount of seed. The clones have been selected for their ability to rapidly germinate in infertile, sandy soils, and for their ability to tolerate cold winters.

CONTACT

Mr. Antonio J. Palazzo
603-646-4374
apalazzo@crrel.usace.army.mil

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of Engineers

Cold Regions Research &
Engineering Laboratory

