The Technology and Development Program

For the past six decades, the U.S. Department of Agriculture (USDA) Forest Service's Technology and Development program has provided practical solutions to problems identified by employees and cooperators. The program helps the USDA Forest Service manage the Nation's natural resources more efficiently and more safely.

The Technology and Development Program relies on two centers, one in Missoula, MT, and the other in San Dimas, CA. Each center works on 80 to 150 projects every year. Most projects are completed within 18 months to 3 years.

Recent projects have:

- Tested and approved spark arresters that prevent chain saws and motorcycles from throwing sparks that can start fires
- Developed a campground water pump that can be used by people with disabilities
- Tested fire retardants that slow wildland fires
- Saved millions of dollars by establishing contract standards for firefighting equipment purchased at large-volume discounts, such as flame-resistant shirts and pants, shovels, gloves, and many other items

This variety of projects requires many different talents. The skills of the program's slightly more than 100 employees include engineering, forestry, machine tool operation, metal fabrication, drafting, contract administration, publication design, helicopter rappelling, smokejumping, explosives, recreation management, sociology, global positioning systems, equipment design, textile design, contracting, editing, photography, finance, Web design, safety, statistics, chemical analysis, reforestation, and video production.

Although the centers are funded specifically to solve problems for the USDA Forest Service, their solutions have been widely adopted by other agencies and by private groups in the United States and abroad.

Missoula Technology and Development Center

During the late 1940s, USDA Forest Service employees at the Aerial Fire Depot in Missoula, MT, began working on ways to use aircraft more effectively for fighting fires in remote areas.

When regular aircraft patrols detected a forest fire, smokejumpers and cargo were dropped at the fire. The

success of these techniques led to the establishment of the Missoula Aerial Equipment Development Center in 1953.

Center employees worked in a variety of locations in Missoula before offices were moved to Fort Missoula during the 1960s.

San Dimas Technology and Development Center

Also during the 1940s, USDA Forest Service employees were consolidating equipment development activities at the Arcadia Fire Equipment Development Center in Arcadia, CA. The southern California site was selected in 1945 because of frequent fire activity in the area, evolving industrial and academic centers there, and a Forest Service facility the center could move into.

Late in the 1940s, a conference of USDA Forest Service range management administrators and researchers recognized that equipment for range seeding and other improvements needed to be adapted or developed. Range became the second "sponsor" at Arcadia and the center's name was changed to the Arcadia Equipment Development Center.

Expanding the Centers' Role

The centers soon were solving other nationally important natural resource problems for the USDA Forest Service. In 1987, the names of both centers were changed from "Equipment Development Centers" to "Technology and Development Centers" in recognition of their expanded role.

Both centers were scheduled for new facilities during the 1960s. The USDA Forest Service purchased land near the Missoula airport for the new facility in Missoula.

The Arcadia center moved to its new facility at San Dimas, CA, in 1965, but the Missoula facility was not funded. Plans for a new facility were redrafted several times, but funding for construction wasn't available until 2000.

In 2002, the Missoula center moved from seven buildings around Missoula to its new facility near the airport. The new facility includes offices, a chemistry laboratory for analyzing fire retardants, a photo studio, a video editing studio, a textile fabrication shop, an electronics shop, a machine shop, and a large meeting room for training.

Directors of the Missoula Technology and Development Center

Herb Harris	1956 to 1969
Farnum M. Burbank	1969 to 1974
Lee Northcutt	1975 to 1990
Terry Solberg (Manager)	1990 to 1995
John Steward (Manager)	1995 to 2000
Dave Aicher (Manager)	2001 to present

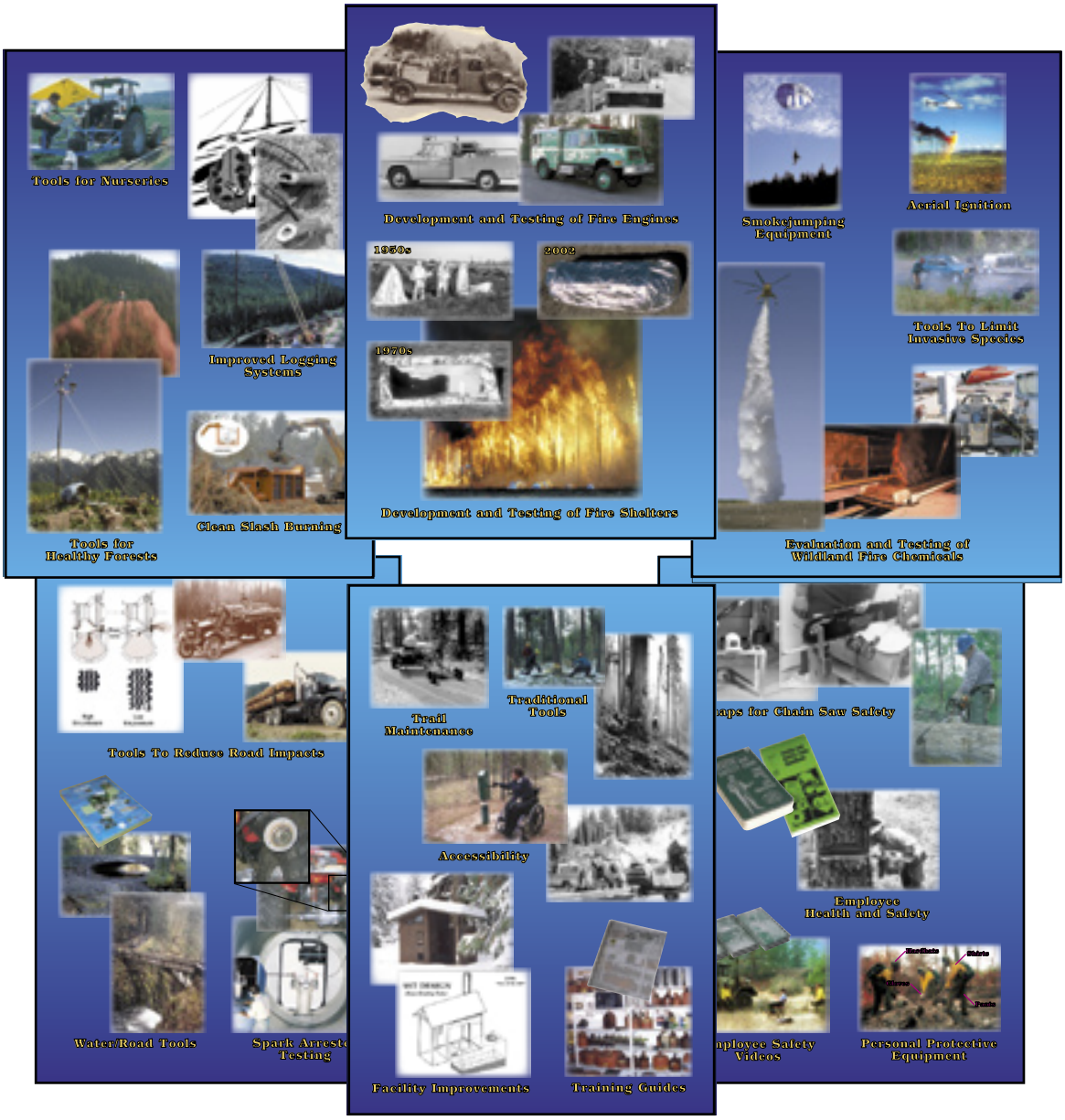
Directors of the San Dimas Technology and Development Center

Ira C. Funk	1945 to 1948
Eugene E. Silva	1948 to 1970
Charles W. Howard	1970 to 1974
Boone Y. Richardson	1974-1984
Larry E. Matson	1984-1986
Leon (Dick) R. Silberberger	1986 to 1997
John D. Fehr (Manager)	1997 to present

Pictorial History of Technology and Development

The following 12 pages are reduced versions of six panels prepared for a display at the USDA Forest Service Centennial Congress in Washington, DC, during January 2005. The text on the page opposite each panel provides additional information about each group of photographs.

The panels show a sampling of work by the Technology and Development Program. Although some of the photos are historic, most of the work is ongoing.

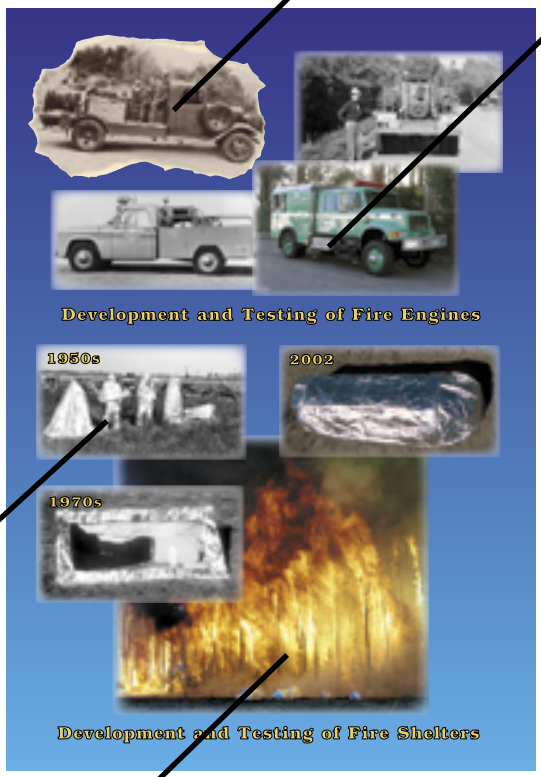


Development and Testing of Fire Engines

The Technology and Development Program's first projects involved improving firefighting equipment. Fire engines have made a lot of progress from the 1930s (upper left photo in the fire engine collage) to the 1990s (lower right photo, fire engine collage).

Today's engines can pump water more quickly, helping firefighters control wildland fires.

The San Dimas Technology and Development Center continues to improve fire engines.



Development and Testing of Fire Shelters

Testing during the 1950s led to development of the fire shelter carried by wildland firefighters since the 1970s. All but one of the designs in the 1950s photo have a flaw: the firefighter is standing up. Assuming that firefighters clear an area of fuel, temperatures at the surface of the ground will be much lower than temperatures even 1 foot above the ground when a fire passes over.

The fire shelter has saved the lives of more than 300 firefighters and has prevented many more injuries. The Technology and Development Program developed a new version of the fire shelter at the turn of the 21st century after laboratory and field testing. The new fire shelter, completed in 2002, provides additional protection, although no shelter can protect firefighters from all conditions. The use of a fire shelter is considered a wildland firefighter's last resort.