



## Life-Saving Aerial Spray Missions In Vietnam

# OPERATION RANCH HAND

**T**HE Ranch Hands of the 12th Special Operations Squadron take to the sky as they wage their own war within a war in Vietnam. Their task: aerial defoliation at various strategic areas to help save the lives of their fighting compatriots. Their motto: "ONLY WE PREVENT FORESTS."

Officially known as Operation Ranch Hand, the "Ranch" has been killing undesirable Viet-

namese vegetation since January, 1962, although it was not designated a separate unit until last October.

Reportedly there are more than 1500 species of woody plants in Vietnam, varying in size from small shrubs to large trees, plus a wide variety of palms, woody vines and herbaceous plants.

Three basic types of herbicides are used: orange, white and blue. These colorful names are derived from the color-coded paint stripe that girdles each shipping drum.

Agent "orange" is a 50-50 mixture of butyl esters of 2,4-D and 2,4,5-T that is sprayed undiluted. Normally used for jungle defoliation, "orange" causes leaf fall in 3 to 6 weeks, with control persisting for 7 to 12 months.

"White" combines picloran

### *In Brief:*

*"Operation Ranch Hand" is the official designation of the Viet Nam aerial spraying program for purposes of defoliation. WTT presents this brief article on the program to illustrate the scope of spray operations. Certain herbicide shortages in this country are understandable in light of government expenditures for herbicides used to support our troops in Viet Nam.*

with 2,4-D in a low volatility amine salt formulation to provide longer duration control of a wide spectrum of woody plants. This agent is similar to compositions used for aerial spraying of power line rights-of-way throughout the United States.

Desiccant agent "blue", cacodylic acid, is a contact herbicide used for rapid defoliation. It is an effective grass control agent, especially useful in keeping down heavy grassy vegetation along roadsides and around military encampments.

The basic spray plane is the twin-engine C-123 aircraft, equipped with a 1000-gallon chemical tank. Each plane is fitted with two wing booms, with 14 nozzles, and one tail boom, using 8 nozzles. Spray operations are controlled from a console located in the rear of the plane. If rains drench an area within two hours after spraying, the target must be re-sprayed. Generally, three to four hours are necessary for effective plant kill.

Normally the crew consists of pilot, co-pilot and a technical specialist who operates the spray console. The operator rides in an armored box; pilot and co-pilots don body armor and helmets for extra-added protection.

Spray equipment is calibrated to discharge the herbicide in five minutes; however, the 1000-gallon tank can be emptied in 30 seconds in case of emergency.

The spray run is made as close to the foliage as is practical, at a relatively slow speed. Viet-

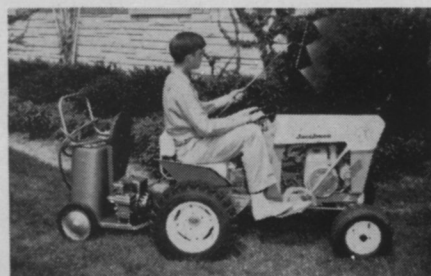
nam's forests have a canopy that can reach as high as 90 feet, with occasional trees towering to 125 feet. Generally the altitude for spray application is 150 feet. Pilots are always within range of small arms fire.

Flying their daily mission, the Ranch Hands — who call themselves "the most shot-at unit in Vietnam" — are favorite targets of the enemy. More than 3000

hits from ground fire have been taken by their planes, and that's only since they started counting, says Lt. Col. Arthur F. McConnell Jr., commander of the squadron.

"We had one UC-123 nicknamed Patches that took 546 hits from ground fire before she was sent back to the U.S. in June," McConnell added.

A Ranch mission is escorted by



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**Table 1. Herbicide expenditures in Viet Nam since 1966.**

Fiscal Year	Expenditures Millions of Dollars
1966	12.5
1967	45.2
1968	43.2
1969	42.7*

\* Expected for delivery from U.S. manufacturers. Not necessarily a firm figure but the best estimate as of October 8, 1968.

For More Details Circle (116) on Reply Card

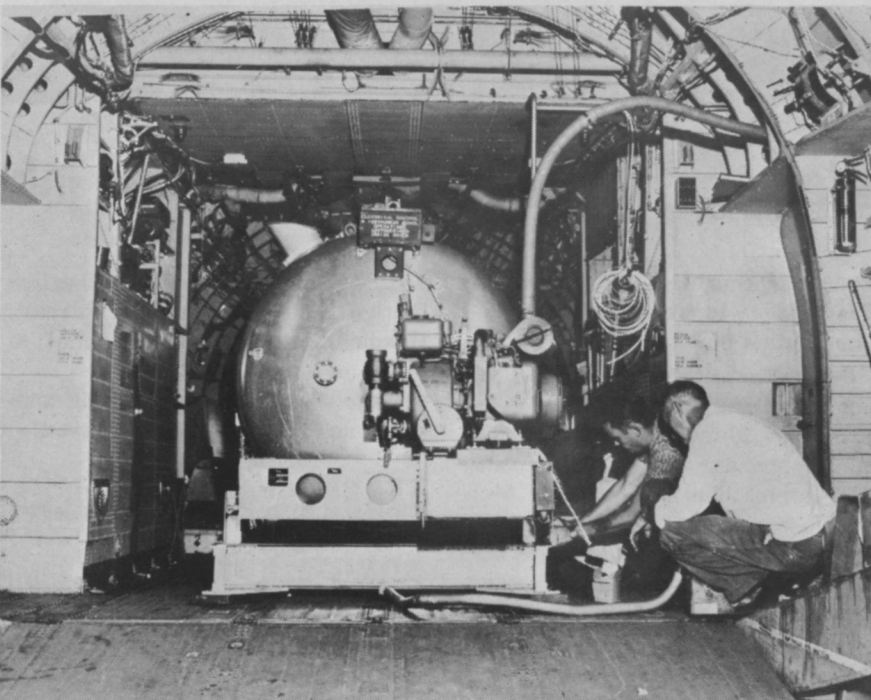


**Table 2. Scope of the Viet Nam defoliation program.**

Year	Acres Sprayed		
	Defoliation	Viet Cong Crop Destruction	Total of Both
1962	17,119	717	17,836
1963	34,517	297	34,814
1964	53,873	10,136	64,009
1965	94,726	49,637	144,363
1966	775,894	112,678	888,572
1967	1,226,823	148,418	1,375,241



Spray boom is being installed on wing of twin-engine UC-123 used by the 'Ranch' for defoliation missions.



fighters who keep an eye out for trouble as spray runs are made. When a plane receives ground fire, the area is marked with purple smoke.

One plane, detailed to malaria control, makes spray runs over villages, bases and cities. Even these health-protecting missions — accompanied by loudspeakers designating them as peaceful runs — are fired on.

Wind, weather and thermal currents greatly influence the effectiveness of the spray applications. Best results are achieved in early morning—spraying must be finished no later than 11 a.m. — when the wind is calm.

Targets are selected via a complex chain of military decisions and political review. High officials—American and Vietnamese — must approve each site. Having cleared all desks, the request then goes to the U.S. Ambassador in Saigon. Occasionally, an especially ticklish request goes all the way to Washington.

Major targets include: Nipa palm and mangrove woodland in coastal areas and along traffic routes in rivers and canals in South Vietnam; moist evergreen or rainforests surrounding Viet Cong strongholds and supply dumps; dense shrubbery and second growth forests along highways, supply roads and railroads to reduce ambush threats; perimeters of villages and military bases; infiltration routes and supply trails in upland forests; and the Demilitarized Zone.

In spite of all precautions, occasional spray may drift and cause damage to rice crops or rubber trees (current price for a mature rubber tree is \$87). When claims are made, prompt action is taken to pay for damages.

Engineers and mechanics set up low-volume spray system positioned in rear of the plane. 1000-gallon tank can be emptied in 30 seconds if necessary.