

**Item ID Number** 03119  **Not Scanned**

**Author** Warren, William F.

**Corporate Author**

**Report/Article Title** Crop Destruction Operations in RVN during CY 1967

**Journal/Book Title**

**Year** 1967

**Month/Day** December 23

**Color**

**Number of Images** 46

**Description Notes** Documents were filed together by Alvin Young under the label, "Review of Vietnam Program". AD-779 798.

AD 779 798

R-27 Warren, W.F.,  
1967

D/UNLIMITED

Crop Destruction Operations in RVN  
During CY 1967

AD 779 798



Crop Destruction Operations in RVN During CY 1967  
Warren, W.F.

# Technical Report

ABROMEDICAL LIBRARY

JAN 14 1980

DOCUMENTS

distributed by



**Defense Technical Information Center  
DEFENSE LOGISTICS AGENCY**

Cameron Station • Alexandria, Virginia 22314

**UNCLASSIFIED/UNLIMITED**

1 OF 1

AD

779 798



AD-779 798

CROP DESTRUCTION OPERATIONS IN RVN  
DURING CY 1967

William F. Warren, et al

Scientific Advisory Group (Navy)  
FPO San Francisco 96610

23 December 1967

DISTRIBUTED BY:

**NTIS**

National Technical Information Service  
U. S. DEPARTMENT OF COMMERCE  
5285 Port Royal Road, Springfield Va. 22151

AD779798

Classification changed to **UNCLASSIFIED**

by authority of Memorandum dated 14 Feb 74

from Asst. Sec. of Defense, Public Affairs

HEADQUARTERS OF THE COMMANDER IN CHIEF PACIFIC  
SCIENTIFIC ADVISORY GROUP  
FPO SAN FRANCISCO, CALIFORNIA 96610

SCIENTIFIC ADVISORY GROUP  
WORKING PAPER NO. 20-67

**CROP DESTRUCTION OPERATIONS IN RVN DURING CY 1967**

by

WILLIAM F. WARREN  
LEHMAN L. HENRY  
RICHARD D. JOHNSTON

Approved by  
ROY F. LINSENMEYER  
Chief, Scientific Advisory Group

23 December 1967

DDC  
RECEIVED  
JUN 13 1974  
D

Material excised from this document  
could not be declassified for reasons  
stated in Para. 3-301(2) and (3), DoD  
Regulation 5200.1R.

This working paper presents the findings of CINCPAC Scientific Advisors.  
It does not necessarily represent the view or policies of the Commander  
in Chief Pacific, nor should it be interpreted as an official finding.

**DISTRIBUTION STATEMENT A**  
Approved for public release  
Distribution Unlimited

ia  
Reproduced by  
NATIONAL TECHNICAL  
INFORMATION SERVICE  
U S Department of Commerce  
Springfield VA 22151

**TABLE OF CONTENTS**

	<u>Page</u>
<b>BACKGROUND INFORMATION .....</b>	<b>1</b>
<b>OBJECTIVES AND POLICIES OF THE CROP DESTRUCTION PROGRAM .....</b>	<b>1</b>
<b>ANALYSIS OF CROP DESTRUCTION OPERATIONS RELATIVE TO OBJECTIVES.....</b>	<b>2</b>
<b>COMMENTS ON EFFECTIVENESS OF OPERATIONS....</b>	<b>3</b>
<b>a. Effect on VC/NVA Food Supply.....</b>	<b>3</b>
<b>b. Relationship of Crop Destruction Operations to VC/NVA Food Shortages .....</b>	<b>4</b>
<b>c. Effects of Crop Destruction Missions in Coastal Provinces.....</b>	<b>5</b>
<b>d. Effects of Crop Destruction Missions in Highland Areas.....</b>	<b>6</b>
<b>e. Food Production Requirements of the VC/NVA</b>	<b>7</b>
<b>f. Effects on VC/NVA Morale.....</b>	<b>8</b>
<b>g. Effect on Civilians in VC Controlled Areas....</b>	<b>8</b>
<b>SUMMARY OF RESULTS.....</b>	<b>9</b>
<b>CONCLUSIONS.....</b>	<b>11</b>
<b>REFERENCES .....</b>	<b>12</b>

**TABLE OF CONTENTS**  
(Cont'd)

	<u>Page</u>
APPENDIX A -	A-1
APPENDIX B - CROP DESTRUCTION OPERATIONS BY DEGREE OF ENEMY CONTROL	B-1
APPENDIX C .	C-1
APPENDIX D - PSYOPS ASPECTS OF DEFOLIATION	D-1
APPENDIX E - HERBICIDE OPERATIONS	E-1
APPENDIX F - SOUTH VIETNAM STATISTICS	F-1

APPENDICES A AND C HAVE BEEN EXCISED

**CROP DESTRUCTION OPERATIONS IN  
RVN DURING CY 1967**

---

**I. BACKGROUND INFORMATION:**

1. The material contained in this paper was collected in support of a staff requirement to review the crop destruction program in RVN for eleven months of 1967. After the staff requirement had been satisfied, the material subsequently was assembled in this paper to make it more readily available for possible future analyses of crop destruction operations.

2. Operations reported here are those crop destruction missions flown with C-123 spray aircraft, and do not include small operations involving ground spray equipment, helicopters, or smaller aircraft. Crop destruction represents about 8% of the total herbicide spraying effort in RVN.

3. Crops sprayed during 1967 were: 69 percent rice, with the remaining being corn, sweet potatoes, peanuts and other broad leaf crops.

**II. OBJECTIVES AND POLICIES OF THE CROP DESTRUCTION PROGRAM:**

1. Objectives of the crop destruction program are stated in the 1967 Combined Campaign Plan and restated in the 1968 Plan, as follows:

a. "Crop destruction operations as a part of economic warfare will be conducted in I, II, and III CTZ's to deny food (rice, cereals, and broad leaf crops) to the VC and VC sympathizers, to direct VC manpower to crop production, and to weaken VC strength in these areas."

b. "Appropriate psychological operations will be conducted before, during and/or after herbicide operations, to explain their necessity to the people, to emphasize their non-toxicity to humans or



animals, and to gain understanding and support among the population."

2. Further elaboration on these basic objectives is given in Annex E, which also defines GVN and US authority and responsibilities for various modes of crop destruction operations.

### III. ANALYSIS OF CROP DESTRUCTION OPERATIONS RELATIVE TO OBJECTIVES:

1. In order to examine the crop destruction program in relation to the objectives of the Combined Campaign Plan, a mission-by-mission analysis was conducted. All the 1967 missions were plotted on a large scale province map of Vietnam with results tabulated by provinces in Appendix A. Appendix B contains a similar plot on a population control map. Another analysis involved plotting crop destruction mission-by-mission on a population density map, with the resulting tabulated data shown in Appendix C. The summarized findings of these analyses are as follows:

a. Review of the 1967 operations to date indicates that the target areas are carefully selected. The areas of South Vietnam are divided into five categories; uninhabited, VC controlled, contested, undergoing securing, and secured. Analysis of all missions conducted in 1967 indicates that 22% have been in uninhabited areas, 76% in VC controlled, and 2% in contested areas. Only one sortie was over an area undergoing securing and none over secured areas. About one-third of the total missions was conducted over or in the immediate vicinity of major VC base areas. (See Appendix B for tabulated data).

b. The fact that spray aircraft suffered 297 hits from ground fire in 622 sorties, and lost 1 aircraft in operations over areas classified as uninhabited or VC controlled, demonstrates that VC were, in fact, present in the target areas selected for crop destruction.

c. Analysis of 1967 crop destruction activities also indicates that all missions were conducted in rice deficit provinces. 27% in I CTZ, 67% in II CTZ, 6% in III CTZ, and none in IV CTZ. No crops have been destroyed in rice surplus provinces. (See Appendix A for additional detail on this aspect of crop destruction operations)

d. Despite implications in the public press to the contrary, there are few people other than VC/NVA troops in areas sprayed. By examination of civilian population densities in areas sprayed during 11 months of CY 1967, it is estimated that an extremely small number of South Vietnamese were directly affected by crop destruction missions. Using the average population density in areas of crop destruction operations and an estimated population of 16,759,000, only one RVN civilian in 40,000 could possibly have been directly affected by crop destruction missions (see Appendix C). 88% of all missions have been conducted in areas where the population is less than 250 inhabitants per square mile and over 20% in "uninhabited" areas. (See Appendix C for additional detail).

e. Analysis of the 1967 data shows that crop destruction targets have been carefully chosen in accordance with established GVN and MACV directives and have been limited to food-scarce areas which are VC controlled. The GVN supports this program at all levels.

f. The herbicide psywar effort which is an important part of the overall program has been accelerated in 1967. Both aerial loudspeakers and leaflets are used to explain necessity of the program to the people, to emphasize the non-toxicity of chemical defoliants to humans and animals, and to gain understanding and support from the civilian population. Procedures to reimburse civilians for inadvertent losses are also provided. (Ref D).

#### IV. COMMENTS ON EFFECTIVENESS OF OPERATIONS.

1. The following information was extracted from a large number of interrogation reports, captured documents and agent reports,

##### a. Effect on VC/NVA Food Supply:

(1) The overall effect caused by crop destruction is best shown by a captured enemy document which is a summary of the regional party committee 2-4 August 1967, AFD which the enemy classified Top Secret. A full section of this enemy document is

Reproduced from  
best available copy.



devoted to "Saving and preservation of food for prevention of famine." The report goes on to say, "Therefore, there is an outlook of a serious crop failure; this situation will much influence the living of the population, the mobilization of and making contribution to the troop foster plan and the capabilities of our food preservation, at areas where the crops are seriously destroyed by the enemy, we must motivate a unification and mutual help program..." The significance of this document is indicative of the ruin of the enemy food supply in I CTZ.

(2) Logistical requirements and man days of VC/NVA labor consumed; the document referenced above comments on troops being diverted from combat missions to transport food to shortage area.

(3) VC and NVA forces in the II Corps area, lack rice, and other food stuffs.

(4) The enemy is experiencing rice problems in MR-5. A VC Sapper training school in MR-5 has been severely limited by rice supply problems: of 150 students which reported for the first course, all but 30 returned to their units due to rice supply problems. Only 35 of a 60 man organization for conducting the school were available at the school because of the food problem.

(5) Food shortages were experienced by an enemy military intelligence unit in Tay Ninh province and curtailment of military intelligence activities and relocation of the unit was necessary as a result - a ration of one liter (about 1 1/4 pounds) of rice per man per day was reported. Enemy military effort was diverted to a search for rice because unit and headquarters elements were "running short of rice."

b. Relationship of Crop Destruction Operations to VC/NVA Food Shortages:

(1) The cause-effect relation between crop destruction

operations and VC/NVA food shortage can be shown by numerous prisoner interrogations. An NVA prisoner states in substance, "As a counter measure against crop destruction, soldiers were ordered to increase food production in small quantities of scattered locations in order to make it more difficult for aircraft to discover the plots.

(2) In the Brigade areas of operation, the NVA and VC technique of planting crops in plots too small to be profitably engaged by C-123 spray aircraft, is being successfully countered by use of smaller CH-47 spray aircraft and UH-1H helicopters equipped with spray equipment.

(3) Captured Documents obtained during operation DRAGON FIRE in Northeast Quang Ngai Province indicated a serious shortage of rice and weapons, a dire concern with allied use of defoliants, and low morale.

(4) VC lack food, supplies and medicine in Binh Thuan Province. There is a great problem in obtaining food to support the battle field.

(5) Food shortages have degraded enemy capabilities. It is believed that enemy food shortages will become more acute by continuation of these crop destruction operations with further degradation of his combat potential.

c. Effects of Crop Destruction Missions in Coastal Provinces:

(1) The VC/NVA consider the destruction of rice by US/FWMAF operations and destruction of crops by chemical spray to be one of their major problems. Complete destruction of crops in the VC controlled An Lao Valley in the Pershing Area of operation has resulted in the rice ration of the enemy in that area dropping to one cup of rice per VC/NVA per day. This has caused a corresponding drop in enemy morale. Twenty-six enemy personnel surrendered based on a combination of crop destruction and psychological

operations conducted in the An Lao Valley during September.

(2) Food Supply platoons have been organized to purchase rice from hamlets. Rice is becoming increasingly difficult to obtain and platoons must go to a number of hamlets to satisfy requirements.

(3) The VC/NVA have encountered many obstacles in the collection of money and food from the people. The 95th NVA regiment has had to fast for one or two days on several occasions. Lack of food has caused morale to deteriorate to the point that personnel pretend to be sick or lost in order to avoid fighting.

(4) Enemy positions in An Lao Valley were exposed as a result of herbicide spraying. The enemy, after losing his food supply from the An Lao Valley, has planted crops in widely dispersed plots throughout the central highlands. These are being attacked with herbicide using helicopter spray equipment in areas not accessible to larger aircraft.

(5) Enemy in I Corps have been planting small rice plots on the sides of mountains. They vary in size from 10 by 10 feet to 20 by 20 feet. These small plots of rice are an attempt to satisfy VC food requirements without presenting a worthwhile target for herbicide operations.

(6) There are continuing agent and PW reports which indicate shortages of rice and medicines. The enemy's military actions, particularly the foray into Tuy Hoa in September, tend to substantiate reports of rice shortages.

d. Effects of Crop Destruction Missions in Highland Areas.

(1) The VC/NVA control little of the crop-producing land. After existing VC/NVA food supplies were destroyed by spraying, new sources had to be found outside of target areas

currently approved for crop destruction operations. Increased emphasis has been placed on cultivating these new areas. This was particularly evidenced by a "Plant Manioc Against Americans" campaign opened by the VC in Lam Dong Province. Due to the relocation of food sources, the transport of food became difficult and was conducted only at night for fear of detection. Reports from Quang Duc Province indicate 80% of the VC crops in currently approved herbicide targets were destroyed by spraying and the remainder abandoned for fear the remaining crops had been poisoned.

(2) Reports from both coastal and highland provinces show that in areas where crop destruction missions have been flown, food has been denied to the VC/NVA.

(3) VC/NVA troop labor has been diverted from other missions to the growing of food crops in the interior Highland areas of Vietnam.

(4) Throughout II Corps. in October 1967. Rice Denial Operations had a significant effect on security. In eight out of the twelve provinces in the corps zone, enemy activities dropped substantially because of efforts to obtain rice - of which they are in short supply.

e. Food Production Requirements of the VC/NVA.

(1) In an effort to offset the setbacks caused by crop destruction, VC/NVA soldiers were ordered to increase food production in scattered locations throughout base areas to make it difficult for aircraft to discover the cultivated areas. Enemy plans also call for burning many mountainous areas in order that the GVN will not know exactly where they are farming. Further, the enemy has sent requirements to upland families to expand production areas in order to help support the VC/NVA.

(2) Even with the increased emphasis being placed on food production and collection, the VC/NVA consider themselves

to be economically defeated in Phu Yen Province due to the destruction of 80% of their important crops.

(3) In attempts to solve food shortages, VC/NVA troops and infrastructure personnel have been directed to attain self-sufficiency. The NVA/VC are finding it increasingly necessary to harass the people of the countryside and to incorporate, as an important secondary mission in every ground assault, the gathering of foodstuffs and money with which to purchase foodstuffs. NVA as well as VC troops are now spending a greater portion of their time engaged in food production to alleviate shortages. Captured enemy documents indicate that in certain areas, production of rice has become as important as the task of waging warfare.

f. Effects on VC/NVA Morale:

(1) Morale in VC/NVA units has deteriorated because of food shortages. Although man days of VC/NVA labor consumed in food production cannot be estimated accurately at this time; specific instances of troop labor being used have been reported. While no VC/NVA operations are known to have been curtailed because of crop destruction, it must be assumed that deteriorating morale resulting from food shortages has impaired VC/NVA combat operations.

(2) VC morale is bad and still declining in the lower ranks. Morale and manpower problems are related to loss of popular support. Food is a critical problem in I Corps, II Corps and upland regions of III Corps.

g. Effect on Civilians in VC Controlled Areas:

(1) VC source reported that after crop destruction, 1/3rd of villagers escaped to a GVN controlled area since they had never heard of a GVN controlled area having been defoliated.

(2) VC propaganda efforts to stir up the people against

Reproduced from  
best available copy.

the government enjoyed only limited success since they knew that only VC controlled areas are subject to crop destruction.

(3) After defoliation operations in Binh Dinh Province resulted in total crop destruction, the majority of the civilians moved to GVN controlled area.

(4) The civilians complained that VC were responsible for the defoliation because they had "liberated" the area.

(5) People living in VC controlled areas in Binh Thuan Province have been emigrating because chemical defoliation has destroyed 95% of all crops in those areas.

(6) Food shortages were serious in all but IV Corps. In I and II Corps a considerable amount of manpower has been diverted to agricultural production. Food shortage has contributed to poor morale, desertion and defections.

(7) The physical exodus of people from VC controlled territory has resulted in shortages of manpower for all purposes.

## V. SUMMARY OF RESULTS

1. Review of a large number of recent interrogation reports, captured documents, and agent reports

leads to the conclusion that the crop destruction program has had a significant adverse effect on VC/NVA food supply, logistical requirements, and combat effectiveness. Findings are summarized as follows:

### a. Effect on food supply:

(1) In 1967, an estimated 120,000 short tons of rice and other foodstuffs were destroyed through herbicide crop destruc-



tion operations. Of this total, approximately 82,700 short tons were rice and the remainder consisted mainly of broad leaf crops in several provinces. This constituted at least 80% of the crop grown in VC controlled territory.

(2) The estimated rice requirement for VC/NVA units in RVN is 137.5 tons/day. Losses of rice as a result of ground operations has been 38.4 tons/day. An estimated average of 250 tons/day have been destroyed in crop destruction missions. The VC consider themselves to be economically defeated in certain areas.

(3) The belief persists among some VC as a result of their own propaganda that food which has been sprayed cannot be consumed.

(4) Serious localized food shortages are reported from all areas in which crop destruction missions have been conducted.

b. Effect on VC/NVA tactical operations and manpower resources.

(1) In certain instances, the VC have been forced to divert tactical units from combat missions to food procurement operations and food transportation tasks.

(2) As a countermeasure to crop destruction missions, troops are being used to produce food in small scattered locations to make it more difficult for aircraft to discover the plots.

(3) In certain areas, the task of producing rice has become as important as the task of waging war.

c. Effect on VC/NVA morale:

(1) In local areas where extensive crop destruction missions were conducted, defections to GVN increased as a result of low morale resulting principally from short food rations.

(2) Lack of food has caused enemy personnel to pretend to be sick to avoid fighting.

(3) As a result of loss of popular support, VC morale is bad, and is still declining in areas where crop destruction has occurred.

d. Effect on civilians in VC controlled areas:

(1) Civilians complain that the VC were responsible for crop destruction because they had "liberated" the area.

(2) After crop defoliation operations, large numbers of civilians move to GVN controlled areas because they had never heard of crop destruction operations having been conducted in other than VC controlled areas.

VI. CONCLUSIONS

1. Crop destruction operations are seen as an integral, essential and effective part of the total effort in South Vietnam. Review of the program in 1967 has shown that program objectives, as stated in the Combined Campaign Plan, are being met and continuing effectiveness can be expected in the coming year using the same proven objectives and policies.

## REFERENCES

- A. Project CHECO Southeast Asia Report "Herbicide Operations in Southeast Asia July 61 - June 67 Special Report" dated 11 October 1967.
- B. Research and Analysis Study ST 67-003 "Evaluation of Herbicide Operations in RVN" COMUSMACV 12 July 66.
- C. Message MACV to CINCPAC 071105Z Dec 67
- D. SG 230299 RVNAF MILCAP-Military Civil Assistance Program (0001711), approved on 17 August 1967 by General Cao Van Vien, General Commissioner of National Defense, on the subject of financial assistance for death, injury and property damage.
- E. USARV Chemical Conference Final Report, 30 October 1967, on loan from CINCUSARPAC.

SECRET

APPENDIX B.

CROP DESTRUCTION OPERATIONS BY DEGREE OF ENEMY CONTROL

Area of VC Base Missions/ miles/fr/ base.	Week Ending	Sorties/Hectares/Hits				Sortie/Hect/Hits Total
		VC con- trol	Con- tested	Under- going secur- ing.	Unin- habited	
	18 Nov					
	11 Nov					
	4 Nov	8/900				8/900
3/6	28 Oct	18/1886			12/1444	30/3330
	21 Oct					
2/5	14 Oct	19/1798/6			3/144	22/1942/6
2/6	7 Oct	28/4992			4/462	32/5454/19
6/5	30 Sept	49/5226/37			5/600	54/5826/37
5/3	23 Sept	16/6353/19	3/240			39/3893/19
	16 Sept	8/816				8/816
	9 Sept					
	2 Sept					
1/1	26 Aug	24/3185/16	2/290		6/803	32/4278/16
4/5	19 Aug	12/1411/12			3/185/19	15/1596/31
5/2	12 Aug	21/2468/2			2/121/9	23/2589/11
2/2	5 Aug	7/1123/1	2/232			9/1355/1
2/2	29 Jul	10/1525/8				10/1525/8
3/5	22 Jul	32/4799/3	2/81		8/1011/1	42/5891/4
2/5	15 Jul	10/1376	3/123			12/1699
5/3	8 Jul	15/2197/9			6/615	21/2712/9
1/5	1 Jul	3/450			11/1480/6	13/1930/6
	24 Jun	22/3127			10/1530/4	32/4657/11
3/4	17 Jun	28/3714/4			6/835/1	34/4549/5
1/2	3 June	11/1574				11/1574
3/3	10 Jun	13/1467/2			10/1336/6	23/2803/8
2/2	27 May	10/8721/7			2/1505/5	22/10226/12
	20 May	3/365			4/351/1	7/800
	13 May	6/830/13			3/390	9/1220
	6 May					
1/2	29 Apr	12/1410/7			8/1200/1	20/2610
1/3	22 Apr	2/300/2		1/150	5/750	8/1200/12
1/1	15 Apr	6/900			8/1235/7	14/2135/7
	8 Apr				3/155	3/155
	1 Apr	3/450				3/450/1
	25 Mar	3/300				2/300/2
1/5	18 Mar	19/2060			2/350/7	21/2410/37
	11 Mar	2/150				2/150

B-1

SECRET

APPENDIX B.

Area of VC Base Missions/miles/yr/base.	Week Ending	Sorties/Hectares/Hits				Sortie/Hect/Hit Total
		VC controlled	Controlled	Undergoing securing.	Uninhabited	
1/5	4 Mar	14/1900/10			2/250	16/2150/19
1/2	25 Feb	15/2190/3				15/2190/3
	18 Feb					
	11 Feb				2/300	2/300
	4 Feb					
	28 Jan				4/548	4/548
	21 Jan					
	14 Jan		2/300			2/300
	7 Jan					
58/4 (mile (ave.))	Grand Totals	469/67,263/220	13/1466	1/150	139/17684/77	622/86,563/297

No Sorties flown in secured areas.

NOTES:

MACRDS Area Control Map (Scale: 1; 1,000,000), as of 30 September 1967, was the information source of the following findings: using weekly herbicide reports for the basic data:

FINDINGS:

1. A total of 622 sorties (C-123 A/C) covered 86,563 hectares under crop destruction operations.
2. 467 sorties (75%) covered 67,355 hectares (78%) of VC controlled areas.
3. 140 sorties (23%) covered 17,592 hectares (20%) of uninhabitable areas.
4. 14 sorties (2%) covered 1,466 hectares (2%) of controlled areas.
5. 1 sortie (neg %) covered 150 hectares (neg %) of areas undergoing securing.
6. Zero sorties were flown in secured areas.
7. 297 hits, with one aircraft loss, were sustained during the subject operations.

B-2

8. 220 (74%) of aircraft hits were obtained in the VC controlled areas, and 77 hits (26%) occurred in the uninhabitable areas. No hits were sustained in either the secured or undergoing securing areas.

9. 58 missions were flown within an average of 4 miles of VC bases where the majority of aircraft hits were obtained.

10. Ratio of hits/hectares covered in VC controlled areas equals  $220/67,355 = .00327$ , compared with the ratio of  $77/17,592 = .00438$  for uninhabitable areas. These ratios indicates the uninhabitable areas contain numerous VC forces or VC sympathizers.

UNCLASSIFIED

JUSPAO GUIDANCE

NUMBER 31

February 25, 1967

PSYOPS ASPECTS OF DEFOLIATION

DISTRIBUTION:  
STANDARD

APPROVED BY:  
DIRECTOR, JUSPAO  
February 25, 1967

JUSPAO PLANNING  
OFFICE, SAIGON,  
VIETNAM

UNCLASSIFIED

APPENDIX D

//

## PSYOPS ASPECTS OF DEFOLIATION

### Problem:

To put into perspective the psyops aspects of the defoliation measures undertaken jointly by the RVNAF and the FWMAF to deny the enemy cover and concealment.

### Background:

Joint GVN/US defoliation operations were initiated early in February 1967 in the southern portion of the Demilitarized Zone (DMZ). These operations seek to inhibit further use of the DMZ by the North Vietnamese armed forces for infiltration into the RVN by denying the enemy the use of vegetation for cover and concealment. Similar operations have been conducted since 1961 in various provinces of the RVN to support military operations against VC/NVA units, who use natural cover to conceal their assembly areas, supply points and bases for attacks on GVN/FWMAF outposts and installations.

### Discussion:

Defoliation has been carried on in the RVN since 1961 for defensive purposes as a joint GVN/US program. The main objectives of defoliation are to:

- (1) Provide security to lines of communications of ARVN/FWMAF by removing dense vegetation from probable ambush sites;
- (2) Remove jungle concealment from VC/NVA base areas, safe havens and infiltration routes, and
- (3) Provide increased visibility around ARVN/FWMAF installations.

The program is being extended, for example, to the portion of the DMZ south of the provisional military demarcation line to help make NVA facilities and routes of passage through this key area more visible, thereby enabling GVN/FWMAF to take the necessary defensive measures.

Enemy propaganda has depicted and continues to depict the aerial and ground spray herbicides used in defoliation in RVN as harmful to humans and livestock. Both overt and



whispering campaigns are employed by the VC to spread fear and arouse hatred among the rural population of what is called the poison that destroys the peoples' livelihood. Even school primers in VC-controlled areas inculcate this attitude. For example, a captured VC grammar school text includes among its nursery rhymes: "We children hate Americans who are cruel. They scatter poison to destroy our paddies and vegetables."

(4) Defoliation has been conducted in Vietnam, where required, since 1961 without any adverse effect whatever on either civilian or military personnel in the affected area. Nor have domestic animals been harmed by the spray.

As regards the defoliation operations now underway (February 1967) in the southern part of the DMZ, psyops personnel may point out when warranted that special safety measures are being taken by the GVN military demarcation line. The GVN informed the International Control Commission in advance of the defoliation operation that it would be confined exclusively to the southern part of the DMZ to halt the mass infiltration of armed units from the North on their mission of aggression through the buffer zone into the territory of the RVN.

**APPENDIX E.**

HEADQUARTERS  
UNITED STATES MILITARY ASSISTANCE COMMAND, VIETNAM  
APO San Francisco 96243

DIRECTIVE  
NUMBER 525-1\*

15 February 1966  
(MACCOC)

HERBICIDE OPERATIONS (U)

1. (U) PURPOSE. To prescribe policies, responsibilities and procedures governing the operational employment of herbicides within this command.

2. (C) GENERAL.

a. The use of herbicides for defoliation and crop destruction is primarily a Government of the Republic of Vietnam (GVN) venture that is supported by the United States Government. The GVN responsibilities are exercised through the JGS 202 Committee.

b. Subject to policy guidance established by the US Defense and State Departments, COMUSMACV and the US Ambassador are empowered jointly to authorize US support of GVN requests for herbicide operations. Senior US Advisors at Corps and Divisions are delegated authority to approve defoliation requests which employ hand spray and ground-based power spray methods falling within the guidelines contained in paragraphs 4b and 4c.

c. MACV exercises command supervision, coordination, liaison, and control of all US Armed Forces support of defoliation and chemical crop destruction operations in RVN.

d. The MAP program supplies to the GVN the chemicals and material normally used in herbicide operations.

e. US personnel will assist the GVN Armed Forces in selection of targets and in planning, support, and evaluation of herbicide operations.

f. In selecting targets for crop destruction, consideration will be given first to the alternative of securing and recovering the harvest for GVN use.

\*This Directive supersedes MACV Directive Number 525-1, 8 April 1964

APPENDIX E

15 February 1966

3. (U) RESPONSIBILITIES. The following specific responsibilities are assigned in the planning and implementation of herbicide operations:

a. Director, COC.

- (1) Coordinate all target planning and operations.
- (2) Exercise joint staff supervision and authority for herbicide operations.
- (3) Review all plans of selected targets forwarded by the JGS 202 Committee and make appropriate recommendations to COMUSMACV. To expedite this coordination, a special committee to be identified as MACV 203 Committee is established with representation from COC, J2, POLWAR Advisory Directorate, USAID, and the US Embassy. Second Air Division will be represented for all targets involving delivery by aerial means. The MACV Staff Chemical Officer will serve as the chairman.
- (4) Provide recommendations to COMUSMACV on JGS proposals for herbicide operations.
- (5) Provide quantitative herbicide requirements to the Air Force Advisory Group for MAF programming.

b. Assistant Chief of Staff, J2.

- (1) Provide the Chemical Branch, Surface Plans and Operations Division, COC, (hereafter referred to as Chemical Branch) information on potential targets.
- (2) Review the JGS intelligence annex for completeness and accuracy.
- (3) Collect, evaluate, and disseminate information relative to the effectiveness of herbicide operations.

c. Director, Polwar Advisory Directorate.

- (1) Review the JGS psywar plans for completeness and responsiveness.

Reproduced from  
best available copy.

Directive Number 525-1, HQ MACV (Cont)

15 February 1966

(2) Review the JCS civic action plans, when applicable, for completeness and adequacy to include plans for rehabilitation of refugees.

d. Commander, Second Air Division.

(1) Advise Chemical Branch on the feasibility of potential aerial spray targets.

(2) Plan, coordinate, and execute the aerial delivery of herbicide on approved targets.

(3) Submit Ranch Hand After Action Report to COMUSMACV, ATTN: COC 13, on completion of each day's spray missions giving:

(a) Time on target.

(b) Coordinates of area sprayed.

(c) Number of sorties flown.

(d) Number of gallons of herbicide dispersed.

(e) Other information such as hits, aborts, etc.

e. Corps Senior Advisors.

(1) Exercise US approval authority for GVN requests for ground-based power spray defoliation in accordance with paragraph 4b.

(2) Exercise US approval authority for non-divisional GVN requests for hand spray defoliation operations in accordance with paragraph 4c.

(3) Submit to COMUSMACV, ATTN: COC 13, a detailed letter of recommendations on all herbicide requests for C-123 aircraft and ground-based power spray apparatus for which COMUSMACV and the American Ambassador have reserved approval authority. The letter will include:

(a) A summary of the request to include description of targets and the objective of the proposed operation. If the operation is to be conducted in a populated area, the military necessity must be shown to clearly outweigh the adverse effects of any potential crop damage.

15 February 1966

(b) A review of CVNAF intelligence, civic action, and psywar plans for adequacy, and estimates of the number of people affected, including, when possible, the breakdown by ethnic and religious groupings.

(c) A statement reflecting the USAID region representative's concurrence or reasons for non-concurrence in the project.

(d) Recommendations for approval or disapproval, in total or in part, of the basic request.

(4) Submit letter reports to COMUSMACV, ATTN: COC L3, as follows:

(a) By the 15th day of each fiscal quarter, the Ground-Based Defoliation Report, giving a summary of hand and ground-based power spray operations performed during the previous quarter. This report will include, but not be limited to, brief description of each operation indicating location, area, type of vegetation, reason for defoliation, dates of execution, method of defoliation, type and amount of herbicide used, and evaluation of results.

(b) A Herbicide Evaluation Report, as of 60 days after completion of each herbicide operation performed by aerial spray methods within the applicable Corps Tactical Zone. The report will include, but not be limited to:

1. Defoliation.

a. An evaluation of the effectiveness to include visibility estimates and any noticeable effect on the VC incident rate.

b. A summary of any accidental damage to friendly crops in the vicinity and a description of the civic action measures taken or required to offset the damage.

c. A summary of psywar action taken in conjunction with the operation and any significant reaction to the operation from the local populace.

2. Crop Destruction.

a. An estimate of the percentage of crops destroyed, by type, and the effect of this loss of food on the VC.

b. A summary of where and how the VC have acquired substitute food sources, if known.

c. A summary of the civic and psywar action taken or required in conjunction with the operation.

d. An estimate of the number of refugees and ralliers leaving the target area and returning to government control.

e. A summary of significant reactions to the operation from the refugees and local populace.

f. Division Senior US Advisors.

(1) Exercise US approval authority for ARVN division requests for hand spray defoliation operations in accordance with paragraph 4c.

(2) Provide input data to Corps Senior US Advisors for quarterly report as described in paragraph 3e(4).

4. (U) PROCEDURES.

a. Aerial Spray.

(1) Requests for use of herbicide by aerial spray methods received by MACV from JGS will normally include the following information on each target:

(a) UTM grid coordinates.

(b) Overlays or annotated photographs, as appropriate, depicting the target area.

(c) Number of hectares to be sprayed.

(d) Type of vegetation.

(e) Expected harvest date of crops.

(f) Justification, to include objectives and military worth.

(g) Planned psywar and rehabilitation programs.

15 February 1966

(2) The JGS request for herbicide operations support will be forwarded to the Chemical Branch for analysis and staff coordination. If the proposed operation is considered inappropriate because of policy, logistical, technical, or operational limitation, Chemical Branch will attempt to obtain clarification or modification from the JGS 202 Committee. The proposed plan will be presented in detail to the MACV 203 Committee. When the proposal has met the approval of the 203 Committee, it will be formally coordinated with J2 and the POLWAR Directorate. Following approval by the US Embassy, the Chief of Staff, MACV, will forward a letter to the Chief, JGS, confirming the decision to proceed with the operation.

(3) Chemical Branch will furnish the Second Air Division, DOPR-A, the necessary information for the preparation of operation and support plans.

(4) Release of herbicides for approved operations will be coordinated by Chemical Branch with appropriate GVN agencies. The releasing authority is the JGS.

b. Power Spray.

(1) Requests for use of herbicide for defoliation by ground-based power spray methods received by Senior US Corps Advisors from ARVN Corps will be evaluated under the following guidelines:

(a) Defoliation operations will normally be undertaken:

1. Where terrain and vegetation favor the use of defoliants and where handcutting, burning, or hand spraying are impractical.

2. In areas remote from population.

(b) Defoliation operations will not be undertaken when it is apparent that damage will occur to crops except as indicated in paragraph (2) below.

(2) High priority projects may be undertaken in populated areas when the military advantage is very clear and handcutting, burning, or hand spraying are not feasible. Such projects will be forwarded to COMUSMACV for approval by COMUSMACV and the American Ambassador.



15 February 1966

Defoliation will not be undertaken in populated areas until adequate measures have been taken to warn the friendly population and to provide compensation and relief in the event of accidental damage.

(3) Senior US Corps Advisors will evaluate requests, effect necessary reconnaissance, and exercise approval authority.

c. Hand Spray.

(1) Requests for use of herbicide for defoliation by hand spray methods received by Senior US Advisors from ARVN Division or Corps will be evaluated under the following guidelines:

(a) Defoliation operations will normally be undertaken:

1. Where terrain and vegetation favor the use of defoliants and where handcutting or burning are impractical.

2. In areas remote from population.

(b) Defoliation operations will not be undertaken when it is apparent that damage will occur to crops except as indicated in paragraph (c) below.

(c) High priority projects may be undertaken in populated areas when the military advantage is very clear. Such projects will not be undertaken until adequate measures have been taken to warn the friendly population and to provide compensation and relief in the event of accidental damage.

(2) Senior US Advisors will evaluate requests, effect necessary reconnaissance, and exercise approval authority.

5. (U) HERBICIDE OPERATIONS IN SUPPORT OF US AND FREE WORLD MILITARY ASSISTANCE FORCES. All requests by US and Free World Military Assistance Forces for herbicide operations will be submitted to the senior US headquarters within the ARVN CTZ. The senior US headquarters will review these requests and submit them to the CG, ARVN CTZ, requesting appropriate action with information copies to COMUSMACV, ATTN: COC 13, and to the CTZ US chemical advisor.

15 February 1966

FOR THE COMMANDER:



W. B. ROSSON  
Major General, USA  
Chief of Staff

L. M. HARRIS  
Colonel, AGC  
Adjutant General

1 Annex  
Effects of Defoliants on Man

DISTRIBUTION:

E  
Less 25 - 2AD  
Plus 5 - JUSPAO  
5 - USAID  
10 - AMEMB

### EFFECTS OF DEFOLIANTS ON MAN

There have been instances of concern as to possible adverse effects upon exposure to chemical defoliants. This concern must be dispelled among the Vietnamese and US personnel. Failure to do so will offer great opportunities to VC propagandists.

Several facts which will allay this concern are:

- a. Defoliants are used on an excess of 400 million acres annually in the United States.
- b. Defoliants have been used for over twenty years with no cases of harm or injury to man or animal.
- c. Defoliants are non-poisonous, and food or water that has been sprayed can be consumed without danger.
- d. Defoliation has been conducted in Vietnam for over three years without any adverse effects on personnel.

The above information pertains to spray concentrations encountered in the field. The pure liquid agent, as any organic chemical, should be handled with care and flushed with soap and water if accidentally spilled on the body.

Annex A to MACV Directive 525-1, 15 February 1966

HEADQUARTERS  
UNITED STATES MILITARY ASSISTANCE COMMAND, VIETNAM  
APO San Francisco 96222

DIRECTIVE  
NUMBER 525-1

22 November 1967  
(MACCOC)

COMBAT OPERATIONS  
HERBICIDE OPERATIONS (RCS: MACCOC-12)(U)

1. (U) PURPOSE. To prescribe policies, responsibilities and procedures governing the operational employment of herbicides within this command.

2. (C) GENERAL.

a. The use of herbicides for defoliation and crop destruction is primarily a Government of Vietnam (GVN) operation that is supported by the United States Government. The GVN responsibilities are exercised through the JGS 202 Committee.

b. Subject to policy guidance established by the US Defense and State Departments, COMUSMACV and the US Ambassador are empowered jointly to authorize US support of GVN requests for herbicide operations. Senior advisors of ARVN Corps are delegated authority to approve defoliation requests for ground based spray. Crop destruction must be approved by COMUSMACV and the US Ambassador.

c. Crop destruction will be limited to areas in I, II and III Corps where food is scarce, and where denial of the food would create an operational burden on the enemy.

d. Except in cases of overriding urgent military necessity, special care will be taken in planning and executing operations to prevent damage to rubber and fruit trees by herbicides.

e. MACV exercises command supervision, coordination, liaison and control of all US Armed Forces support of defoliation and chemical crop destruction operations in RVN.

\*This directive supersedes MACV Directive 525-1, 15 February 1966.

MACV Dir 525-1

f. The Military Assistance Service Funded (MASF) program supplies to the GVN the chemicals normally used in herbicide operations.

g. US personnel will assist the Republic of Vietnam Armed Forces (RVNAF) in selection of targets and in planning, support and evaluation of herbicide operations.

h. In selecting targets for crop destruction, consideration will be given first to the alternative of securing and recovering the harvest for GVN use.

3. (U) DEFINITIONS.

a. Aerial Spray. Any means of dispensing herbicide from an airborne vehicle. This includes fixed and rotary wing aircraft.

b. Crop Destruction. The destruction of food producing plants while in the growing stages by the use of herbicides to deny food resources to the enemy.

c. Defoliation. The use of herbicides to cause trees and plants to lose their leaves in order to improve observation.

d. Ground-based Spray. Any means of dispensing herbicide from equipment operated on the ground. This includes the use of hand spray and power spray equipment.

e. Growth Retardant. A chemical compound applied to the soil which retards plant growth for extended periods. This material has been used extensively in the US as sprays and as granular or pelleted herbicide for vegetation control in non-crop areas. Such sites include industrial areas, tank farms, drainage ditches, railway embankments, fence lines, and other areas where growth regulation is desired.

4. (U) RESPONSIBILITIES. The following specific responsibilities are assigned in the planning and implementation of herbicide operations:

a. Director, COC will:

(1) Coordinate all target planning and operations

(2) Exercise joint staff supervision and authority for herbicide operations.

(3) Review all plans of selected targets forwarded by the JGS 202 Committee and make appropriate recommendations to COMUSMACV. To expedite this coordination, a special committee to be identified as the MACV 203 Committee is established with representation from COC, J2, CORDS, Psychological Operations Directorate (MACPD), USAID and the US Embassy. The MACV Staff Chemical Officer will serve as the Chairman.

(4) Provide quantitative herbicide requirements to the Air Force Advisory Group for MASF programming.

b. Assistant Chief of Staff, J-2 will:

(1) Provide Chemical Operations Division, COC information on potential targets.

(2) Review the JGS intelligence annex for completeness and accuracy.

(3) Collect, evaluate and disseminate information relative to the effectiveness of herbicide operations.

c. Director, MACPD will:

(1) Review the JGS PsyWar plans for completeness and responsiveness.

(2) Review the JGS civic action plans, when applicable, for completeness and adequacy to include plans for rehabilitation of refugees.

d. Commander, 7th Air Force will:

(1) Advise Chemical Operations Division on the feasibility of potential aerial spray targets.

(2) Plan, coordinate and execute the C-123 aerial delivery of herbicide on approved targets.

(3) Submit a copy of the Daily Air Activities Report (DAAR) to COMUSMACV, ATTN: COC7, on completion of each day's spray missions.

e. Corps Senior US Advisor will:

(1) Exercise US approval authority for GVN requests for ground-based defoliation.

(2) Submit to COMUSMACV, ATTN: COC7, a detailed letter of recommendations on all herbicide requests for crop destruction and aerial spray. The letter will include:

(a) A summary of the request to include description of the targets and the objectives of the proposed spray mission. If the operation is to be conducted in a populated area, the military necessity must be shown to outweigh the adverse effects of any potential damage to friendly crops.

(b) A review of RVNAF intelligence, civic action and PsyWar plans for adequacy, and estimates of the number of people affected, including, when possible, the breakdown of ethnic and religious groupings.

(c) A statement reflecting the CORDS Province Senior Advisor's concurrence in the project.

(d) Recommendations for approval or disapproval, in total or in part, of the basic request. Reasons for disapproval will be specified in detail.

5. (U) PROCEDURES.

a. Aerial Spray.

(1) The JGS will request herbicide operations from MACV. The JGS requests for herbicide support will be forwarded to the Chemical Operations Division for analysis and staff coordination. If the proposed operation is considered inappropriate because of policy, logistical, technical or operational limitations, Chemical Operations Division will attempt to obtain clarification or modification from the JGS 202 Committee. The proposed plan will be presented in detail to the MACV 203 Committee. Following approval by the 203 Committee and the US Ambassador, the Chief of Staff, MACV, will forward a letter to the Chief, JGS confirming the decision to proceed with the operation.

(2) Requests for use of herbicide by aerial spray methods will include the following information on each target:

(a) UTM grid coordinates.

(b) Overlays or annotated photographs, as appropriate, depicting the target area.

(c) Number of hectares to be sprayed in the case of crop destruction.

(d) Type of vegetation.

(e) Expected harvest dates of crops.

(f) Justification, to include objectives and military worth.

(g) Planned PsyWar and civil affairs programs.

(3) The following actions must be in MACV before a request for aerial spray can be processed:

(a) A request that the project be approved and accomplished from the Chief, JGS/RVNAF.

(b) Recommendation for approval from the corps senior advisor.

(c) A pledge of indemnification for any accidental damages which may occur in friendly areas signed by the appropriate GVN authority.

(d) A civil affairs plan to support the operations.

(e) A PsyWar plan to support the operation.

(4) Chemical Operations Division will furnish 7th Air Force the necessary information for the preparation of operation and support plans.

(5) Release of herbicides for approved operations will be coordinated by Chemical Operations Division with appropriate GVN agencies. The releasing authority is the JGS.

(6) US helicopters under competent control may be used to spray herbicides within MACV approved target areas.

**b. Ground-based Spray.**

(1) Requests for use of herbicide for defoliation by ground-based methods received by senior US corps advisors from ARVN Corps will be evaluated under the following guidelines:



(a) Defoliation operations will normally be undertaken:

1. Where terrain and vegetation favor the use of defoliants and where handcutting, burning or mechanical clearing is impractical.

2. In areas remote from population.

(b) Defoliation operations will not be undertaken when it is apparent that damage will occur to crops, except as indicated in paragraph 5b(2), below.

(2) High priority projects may be undertaken in populated areas when the military advantage is very clear. Such projects will be forwarded to COMUSMACV for approval by COMUSMACV and the US Ambassador. Defoliation will not be undertaken in populated areas until adequate measures have been taken to warn the friendly population and to provide compensation and relief in the event of accidental damage.

(3) Senior US corps advisors will evaluate requests, effect necessary reconnaissance and exercise approval authority. This authority may be delegated to the senior US advisor to ARVN Divisions at the discretion of the senior US corps advisors.

(4) Requests for use of herbicides for crop destruction by ground-based methods will be processed in the same manner as aerial spray (see paragraph 5a, above).

c. Growth Retardants. In areas where maximum security is required for a long period of time, such as base camps, storage depots, and ammunition storage points, growth retardants may be used to keep the area clear of vegetation. Growth retardants are more effective when mixed with the soil after the vegetation has been removed. Because of the longer lasting effects of growth retardants, the greater effort required to apply them properly and the possibility of accidental damage to friendly areas, the use of growth retardants will be approved by COMUSMACV. Requests for the use of growth retardants will be addressed to COMUSMACV, ATTN: COC7.

6. (U) HERBICIDE OPERATIONS IN SUPPORT OF US AND FREE WORLD MILITARY ASSISTANCE FORCE. All requests by US and Free World Military Assistance Forces for herbicide operations will be processed in accordance with the instructions of the force commander/senior advisor

within the ARVN CTZ. Requests for aerial spray must reach MACV with the same actions as listed under paragraph 5, above.

7. (U) REPORTS. Corps senior US advisors will submit letter reports to COMUSMACV, ATTN: MACCOC7 (RCS: MACCOC-12) as of 60 days after completion of each herbicide operation by aerial methods within the applicable corps tactical zone. The report will include, but not be limited to:

a. An evaluation of the effectiveness to include visibility estimates and/or extent of crop destruction, and any noticeable effects on the enemy incident rate, and an estimate of where or how the enemy has acquired substitute food sources.

b. A summary of any accidental damage to friendly crops in the vicinity and an evaluation of the civic action measures taken or required to offset the damage.

c. An evaluation of the civic and PsyWar action taken or required in conjunction with the operation.

d. An estimate of the number of refugees and ralliers leaving the target area and returning to government control.

e. A summary of significant reactions to the operations from the refugees and local populace.

8. (U) REFERENCE. JUSPAO Policy Guidance No. 31, dated 25 February 1967.

FOR THE COMMANDER:



WALTER T. KERWIN, JR.  
Major General, USA  
Chief of Staff

NEIL N. SNYDER, JR.  
Colonel, USA  
Adjutant General

**DISTRIBUTION:**

**B**

**Plus 25 - COC**

**150 - AG-AOP**

**5 - AG-AO**

**APPENDIX F.**

**SOUTH VIETNAM STATISTICS**

**Population** 16,759,000 1 January 1967

**Land**

66,000 square miles  
35% arable (18% cultivated)  
32.5% forested  
32.5% other

**Labor Force**

Employed work force 6.2 million (not including armed forces)

80.2% agriculture  
3.2% transportation & communication  
2.4% fishing  
2.4% construction  
2.3% commerce & finance  
2.1% domestic  
4.3% government  
2.4% manufacturing  
0.7% plantation & public utilities

Main food crops: rice, peanuts, corn, sugar cane, sweet potatoes, copra.

---

**RICE PADDY STATISTICS**

**Total area under cultivation, 2,562,000 (hectares)**

**Production, 5,185,000 (metric tons)**

**Source: Statesmen's Year Book 1966-67  
(1964-65 data)**

---

END  
DATE  
FILMED  
7-15-74

**UNCLASSIFIED/UNLIMITED**

**PLEASE DO NOT RETURN  
THIS DOCUMENT TO DTIC**

---

**EACH ACTIVITY IS RESPONSIBLE FOR DESTRUCTION OF THIS  
DOCUMENT ACCORDING TO APPLICABLE REGULATIONS.**

**UNCLASSIFIED/UNLIMITED**