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Analysis of National Academy of Sciences (NAS) documents  
re Philippine and Vietnamese spraying of Agent Orange and Agent White

March 15, 2008

**Titles of documents:**

- 1) NAS Committee on the effect of Herbicides in Vietnam: Preliminary Proposals for Studies on the Persistence of Herbicides in Forest and Mangrove soil. Authors: John D. Fryer & G. Blackman.
- 2) Investigations relating to the persistency of herbicides: Experimental procedures for sampling and determination of residues. Author: G. A. Blackman, February 1972.
- 3) National Academy of Sciences Committee on effects of herbicides in Vietnam: Persistence of Herbicides 'Orange' and 'White' in a forest soil.

**Acronyms used in these documents:**

**IRRI** International Rice Research Institute

IRRI was established in 1960 by the Ford and Rockefeller Foundations in cooperation with the Philippine government. Our headquarters—which feature modern laboratories, training and accommodation facilities, and a 252-hectare experimental farm—lie next to the main campus of the University of the Philippines Los Baños, about 60 kilometers south of the Philippine capital, Manila.

**WRO** Weed Research Organization (of the Agricultural Research Council, U.K.)

**Overview**

I discovered the existence of these documents in the Bodleian Library, Oxford University UK, in early 2008. John Paul Rossie, President of the Blue Water Navy organization retrieved them and sent me copies in March. Somebody else made all markings and border notes anonymously, perhaps long ago. Agent White and its components are given equal or greater weight compared to Agent Orange throughout these documents. It becomes clear that these experiments involve the Rung Sat and My Tho in Vietnam as well.

**People's names mentioned in these three documents:**

Dr. C. Minarick	(Doc #1, page 2)
John D. Fryer	(Author #1 of doc #1; doc #2, page 1, 3)
G. A. Blackman	(Author #2 of doc #1)
Dr. Chandler	(Doc #1, page 3, 4, 6)
Professor Ho	(Doc #1, page 3, 4)
Dr. Lang	(Doc #1, page 4)
Dr. R. J. Hance	(Doc #1, page 4; Doc #2, page 1; Doc #3, page 3)
McKone	(Doc #2, page 3)
Newton	(Doc #2, page 6, 9)
Phil Ross	(Doc #2, page 9)
Dr. T. Yoshida	(Doc #3, page 3)

### **Analysis of individual documents:**

1) NAS Committee on the effect of Herbicides in Vietnam: Preliminary Proposals for Studies on the Persistence of Herbicides in Forest and Mangrove soil. Authors: John D. Fryer & G. Blackman.

1. The opening paragraphs directly refute what Alvin Young has said about the behavior of Agent Orange during aerial spraying re how much hits the ground.
2. On page 2 under Formulations it is stated that diluents of diesel or kerosene may 'possibly' alter the speed of environmental breakdown of Agent Orange.
3. On page two under Plot size and layout it is mentioned that the presence of charcoal can confuse test results after a burn.
4. On page three under Plot marking it is noted that locals frequent the area being tested.
5. On page three under Precautions for spraying it is noted that spray drift is a notable problem even with low-pressure ground sprays such as this. Windshields are recommended both up and downwind to prevent drift to adjacent plots.
6. On page three under Spraying equipment: The uniformity of width of spray swathe for both Orange and White is affected by viscosity and possibly by concentration. Also, the first of several hints that these agents were tested in the UK by the WRO.
7. On pages three - four under Sampling for residues: Expect 60 – 100% recovery of applied herbicide from soil immediately after application. Some vertical migration is expected as core samples are ordered to the maximum depth their equipment allows. Also, the first hint that pH affects the persistence of herbicides.
8. On page four under Residue analysis it says this document was written November 22 and I'm assuming the year is 1972.
9. On page five under Agricultural studies (beginning on page 6) is mention of another Vietnamese place name due for experimentation: My Tho (spelled Mytho in this document). My Tho and the Rung Sat are both located in the Mekong Delta.

2) Investigations relating to the persistency of herbicides: Experimental procedures for sampling and determination of residues. Author: G. A. Blackman, February 1972.

1. The second paragraph mentions that prior knowledge is restricted, presumably because the U.S. military did not share its information about defoliation in the tropics.
2. The third paragraph again mentions experiments having been conducted in the UK.
3. The third paragraph on page three states that the Vietnamese samples (possibly mangrove soil) were collected in October 1971 and analyzed at the WRO, which may mean the UK.
4. The fourth paragraph on page four states that pH of the sample affects 2,4,5-T extraction, with acidic soil yielding higher results.
5. The sixth paragraph on page eight continuing onto page nine reveals a plan to evaluate a helicopter mounted spray device for rate of output. This testing was considered for an aerodrome, presumably in Vietnam from the context, using Agent Orange and Agent White mixed with dye.

3) National Academy of Sciences Committee on effects of herbicides in Vietnam: Persistence of Herbicides 'Orange' and 'White' in a forest soil.

1. This document is subtitled: Preliminary record of an experiment at Los Banos, Philippines.
2. On page one the "Object" is given as determining the disappearance of the agents from forest soil during the dry season.
3. On page one under Treatments: Half the total dose of Agent Orange and Agent White was applied in the evening of January 18, 1972 and the remainder on the following morning.
4. On page two under Layout and Site: States that the two 15 x 30 m plots were kindly provided by the University of the Philippines, College of Agriculture, in a clearing on the forest reserve.