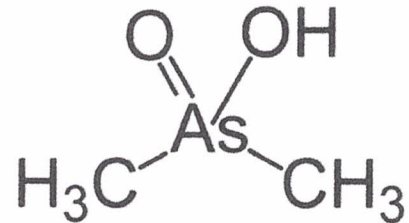




# Agent Blue

**Agent Blue** is one of the "rainbow herbicides" that is known for its use by the United States during the Vietnam War. It contained a mixture of dimethylarsinic acid (also known as **cacodylic acid**) and its related salt, sodium cacodylate, and water. Largely inspired by the British use of herbicides and defoliants during the Malayan Emergency, killing rice was a military strategy from the very start of US military involvement in Vietnam. At first, US soldiers attempted to blow up rice paddies and rice stocks, using mortars and hand grenades. But grains of rice were far more durable than they understood, and were not easily destroyed. Every grain that survived was a seed to be collected and planted again.



Cacodylic acid (and sodium cacodylate) are components of **Agent Blue**

## History

A 1967 report to the International War Crimes Tribunal stated that "The soldiers discovered that rice is one of the most maddeningly difficult substances to destroy; using thermite metal grenades it is almost impossible to make it burn and, even if one succeeds in scattering the rice, this does not stop it being harvested by patient men." The purpose of **Agent Blue** was to kill narrow-leafed plants and trees (grass, rice, bamboo, banana, etc.) "Operation Ranch Hand", was military code for spraying of herbicides from U.S. Air Force aircraft in Southeast Asia from 1962 through 1971.<sup>[1]</sup> The widespread use of herbicides in Southeast Asia during the Vietnam War was a unique military operation in that it was meant to kill the plants that provided cover. The continued use of Agent Blue and the other "Rainbow Herbicides" by the United States was primarily meant as an operation to take away the enemy's advantage on the terrain as well as deprive them of food.

Between 1962 and 1971, the US used an estimated **20 million gallons of herbicides as chemical weapons for "defoliation and crop destruction"** which fell mostly on the forest of South Vietnam, but was eventually used in Laos as well to kill crops in order to deprive the communist Viet Cong and North Vietnamese troops of food. It was sprayed on rice paddies and other crops in an attempt to deprive the Viet Cong of the valuable crops the plants provided. **Agent Blue** is chemically unrelated to the more infamous **Agent Orange** and other herbicides used during the war.

**Agent Blue** affects plants by causing them to dry out. As rice is highly dependent on water to live, using **Agent Blue** on these paddies can destroy an entire field and leave it unsuitable for further planting. This is why **Agent Blue** was also used where food was not a factor, but the foliage was. The Vietcong had an advantage while fighting in Vietnam because they were used to the abundance of plant life on the battlefield. The US found themselves at a disadvantage and based on the precedent set by the British in Malaya, decided that the best retaliation would be to take the Vietcong's advantage away from them by removing their cover. Along roads, canals, railroads, and other transportation networks, Ranch Hand cleared several hundred yards using the herbicides to make

ambushes more difficult for their enemies. In Laos, the herbicide removed the jungle canopy from the roads and trails used for infiltrating men and supplies, making them more vulnerable to attack from the air.

Approximately 4 million gallons of Agent Blue were used in Vietnam during the war. From 1965 on the Ansul Chemical Company delivered the herbicide *Phytar 560* with the 26.4% sodium cacodylate and 4.7% cacodylic acid in water.<sup>[2][3]</sup>

Cacodylic acid is still used on crops throughout the USA. Taken from ZNet Ecology in 1983:<sup>[4]</sup> "It has been over twelve years since the last herbicide mission that was done. But there is still big controversy going around about the past missions that were sent out."<sup>[5]</sup>

Arsenical herbicides containing cacodylic acid as an active ingredient are still used today as weed-killers. It sprayed on cotton fields, drying out the cotton plants before harvesting. In 2009, use on athletic fields, parks, residential lawns, forestry, non-bearing fruit and nut trees, and citrus orchards were canceled.<sup>[6]</sup>

## References

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1. Major William A. Buckingham, Jr.
2. Young, Alvin L (2009-04-03). *The History, Use, Disposition and Environmental Fate of Agent Orange* (<https://books.google.com/books?id=1iCHpk2fZksC&pg=PA38>). pp. 38–39. ISBN 9780387874852.
3. Bencko, Vladimir; Yan Li Foong, Florence (2017-06-12). "The history of arsenical pesticides and health risks related to the use of Agent Blue" (<http://www.aaem.pl/pdf-74715-12551?filename=The%20history%20of%20arsenical.pdf>) (PDF). *Annals of Agricultural and Environmental Medicine*. Institute of Rural Health. 24 (2): 312–316. doi:10.26444/aaem/74715 (<https://doi.org/10.26444%2Faaem%2F74715>). ISSN 1232-1966 (<https://www.worldcat.org/issn/1232-1966>). PMID 28664715 (<https://pubmed.ncbi.nlm.nih.gov/28664715>).
4. "ZCommunications | Agent Blue and the Business of Killing Rice by Gerard Greenfield | ZNet Article" (<https://web.archive.org/web/20090907014912/http://www.zmag.org/znet/viewArticle/8435>). Zmag.org. Archived from the original (<http://www.zmag.org/znet/viewArticle/8435>) on 2009-09-07. Retrieved 2012-04-02.
5. "Operation Ranch Hand: Herbicides In Southeast Asia Major William A. Buckingham, Jr" (<http://web.archive.org/web/20130222170309/http://www.airpower.maxwell.af.mil/airchronicles/aureview/1983/Jul-Aug/buckingham.html>). Archived from the original (<http://www.airpower.maxwell.af.mil/airchronicles/aureview/1983/Jul-Aug/buckingham.html>) on 2013-02-22. Retrieved 2014-06-17.
6. "Monosodium Methanearsonate (MSMA), an Organic Arsenical, U.S. Environmental Protection Agency" (<https://www.epa.gov/ingredients-used-pesticide-products/monosodium-methanearsonate-msma-organic-arsenical>). 22 April 2015. Retrieved 2022-10-11.

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Retrieved from "[https://en.wikipedia.org/w/index.php?title=Agent\\_Blue&oldid=1135295842](https://en.wikipedia.org/w/index.php?title=Agent_Blue&oldid=1135295842)"

# AGENT ORANGE NEWSLETTER

INFORMATION FOR VIETNAM-ERA VETERANS AND THEIR FAMILIES



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### THE PACT ACT AND VIETNAM VETERANS

The Honoring our Promise to Address Comprehensive Toxics Act of 2022, or PACT Act, will help Veterans in the areas of care for military exposures, presumptions, and research. For Veterans who served nobly in Vietnam or elsewhere where Agent Orange may have affected them, the PACT Act:

1. Adds hypertension and the laboratory test finding of monoclonal gammopathy of undetermined significance (MGUS), which can be a precursor for the development of multiple myeloma in some cases, as presumptions.
2. Adds several locations to the areas eligible for Agent Orange presumptions, including Guam, American Samoa, and Laos; and increased coverage in Thailand. Learn more at at <https://www.publichealth.va.gov/exposures/agentorange/locations/index.asp>

### BEYOND AGENT ORANGE: OTHER TACTICAL HERBICIDES

From 1962 to 1971, during Operation Ranch Hand in Vietnam, the U.S. Air Force sprayed tactical herbicides for control of vegetation. These herbicides were named based on the color of their barrels. During the war, around 20 million gallons of Agents Green, Pink, Purple, Blue, White, Orange, Orange II, Orange III, and Super Orange were sprayed in South Vietnam (<https://www.history.com/news/agent-orange-wasnt-the-only-deadly-chemical-used-in-vietnam>).

Below is information on some of the other herbicides besides Agent Orange that were used:

**Agent Blue** - (cacodylic acid) was an arsenic-based chemical used to destroy rice. About 4 million gallons were sprayed. Among the current presumptions, bladder cancer might be most directly associated with potential exposure to this herbicide.

Agent Purple – consisted only of 2,4,5-T, which is the chemical that

was contaminated with dioxin as a byproduct. About 500,000 gallons of Agent Purple were sprayed.

Agent White – was a 4:1 mixture of 2,4-D and picloram. About 5 million gallons were sprayed, some after the cessation of Agent Orange spraying.

Since many chemical agents were used as tactical herbicides, and since we are not able to measure exposure to these agents adequately, it is difficult to attribute specific health conditions to these chemical agents.

Learn more about Agent Orange and other herbicides at Facts About Herbicides - Public Health (<https://www.publichealth.va.gov/exposures/agentorange/basics.asp>)

