Fort Detrick

Preliminary Archives Search Report Findings for Use / Testing of 2,4,5-T Compounds

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Outline

- Archives Search Report (ASR)
- Detrick Historical Context and Documents
- Federal Government Records
- 2,4,5-T at Fort Detrick
  - 2,4,5-T General
  - World War II Research on “Plant Growth Inhibitors” or “LN” agents
  - 1944-1951 Field Trials at Camp Detrick
  - 1953 & 1968 Tests
  - Locations and Amounts
- Preliminary Nature of Findings

ASR?

- Compiles historical research from various archives and records holding facilities and analyzes them for potential environmental hazards
  - Similar to the EPA's Preliminary Assessment (PA)

Context of Detrick Establishment

- 1943 Chemical Warfare Service (CWS) established the Special Projects Division, the former offensive and defensive biological research and development (R&D) center.
- Camp Detrick was one of many research locations and one of several field test or proving locations for plant agents.

Historical Documents

- Research and Development Installation
  - LOTS of reports detailing what was done
  - Formal reports distributed to various technical libraries
  - Interim or status reports
  - Lab notebooks
  - Other documents, maps, aerial photos
- Classified operations and activities

Technical Libraries

- Detrick Technical Library no longer exists
- Report holdings remain in sister facilities

Where are the other records?

Federal Records Centers & Archives

Record Repositories

- Air Force Historical Research Agency (USAFHRA)
- Chemical, Biological, Radiological, Nuclear Information Analysis Center (CBRNIAC)
- Defense Technical Information Center (DTIC)
- Fort Detrick
- National Archives I
- National Archives at College Park
- National Personnel Records Center Military Personnel Records (NPRC, MPR)
- National Agricultural Library - USDA
- U.S. Army Chemical Materials Agency
- U.S. Army Chemical School
- U.S. Army Center of Military History
- U.S. Army Corps of Engineers, Baltimore District
- U.S. Army Corps of Engineers, St. Louis District
- U.S. Army Environmental Center (AEC)
- U.S. Army Military History Institute (USAMHI)
- U.S. Army Public Health Command (Provisional)
- U.S. Army Research Laboratory Technical Library
- U.S. Army Soldier Biological Chemical Command (SBCCOM)
- Washington National Records Center

2,4,5-T General

- Military defoliant or herbicide Agent Orange (Agent LNX) 50/50 mix of:
  - 2,4-Dichlorophenoxyacetic acid (2,4-D)
  - **2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)**
- 2,4-D and 2,4,5-T sold commercially in late 1940s, 1950s and 1960s as weed killers
- By the late 1960s, it became known that the manufacture of 2,4,5-T was contaminated with a 2,3,7,8-tetrachlorodibenzodioxin (TCDD), a dioxin
- Use of 2,4,5-T halted in 1970 for food crops besides rice; EPA terminated all uses in 1985
- 2,4-D remains in use today as weed killer

2,4,5-T General (cont.)

- 2003 DOD responded a Congressional inquiry about use, storage and testing of herbicides leads to Department of Veterans Affairs web site "Agent Orange: Herbicide Tests and Storage in the U.S.”
- Special Report No. 92, 105, 130, 153 and 156 Field Plot Experiments with Plant Growth Inhibitors from 1946 through 1951, a 1953 test and greenhouse tests in 1961 to 1963
- Lots of variants of 2,4,5-T tested

WWII Research on “Plant Growth Inhibitors” or “LN” agents

- April 1944 – Plant Research Branch (Crops Division) given mission of developing chemical agents to reduce the value of crops (i.e. crops failure)
- Step 1 - Evaluate potential LN chemicals in lab and greenhouse (very small amounts)
  - Over a thousand screened
  - LN-8 (2,4-D) – became standard other LN chemicals compared to; becomes commercial product still in use
- Step 2 – Small Field Trials (at Fort Detrick)
- Step 3 – Larger Field Trials (at other Installations)

1944-1951 Crops Field Research at Detrick

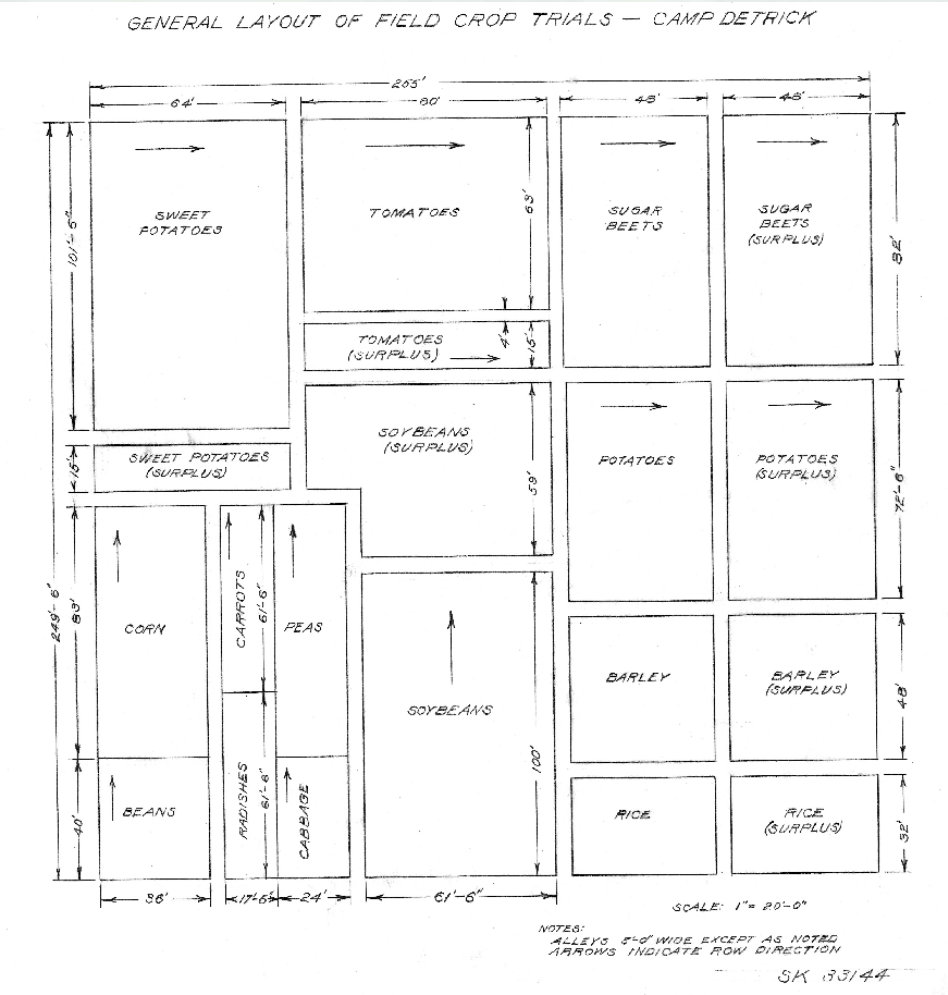
Testing purpose:

"a) ascertain the most effective agent for causing yield reductions for various crops

b) to ascertain the best methods of application

c)to determine the effect of stages of development on plant response"

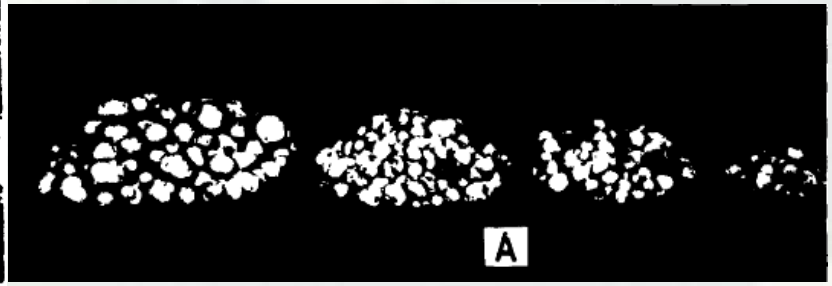
1944-1951 Crops Field Research at Detrick (cont)



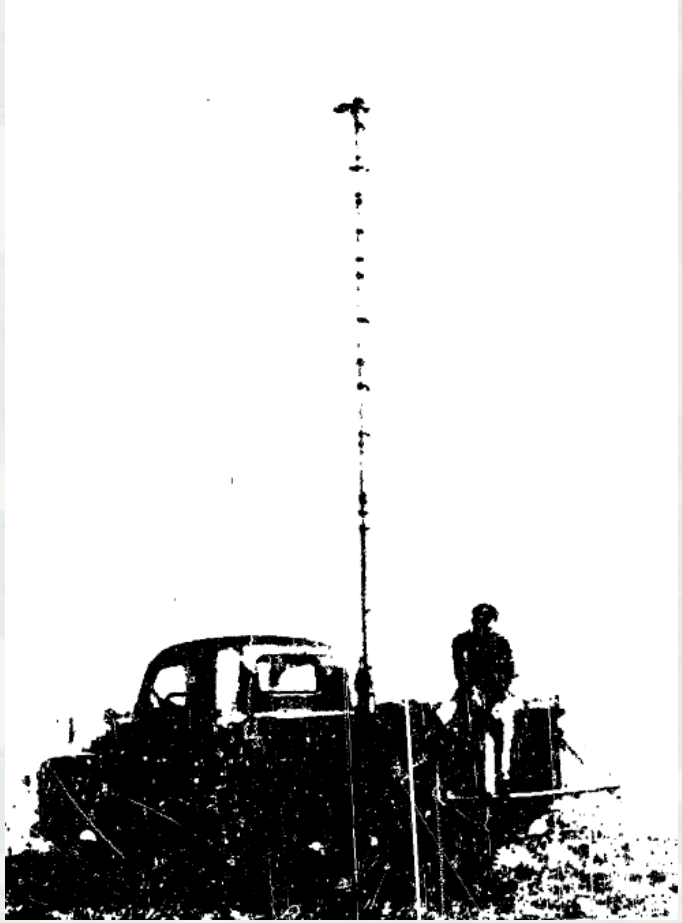
- General Layout of Field Crops Trials - 31 March 1944
- Later year trials are similar in type of layout

1944-1951 Crops Field Research at Detrick (cont)

- Test plots small - typically 6 by 18 feet size
- Applied with handheld sprayers
- Drifting of spray limited with a movable shelter
- Results measured by crops produced or plant height



1953 Truck Mounted Spray Test



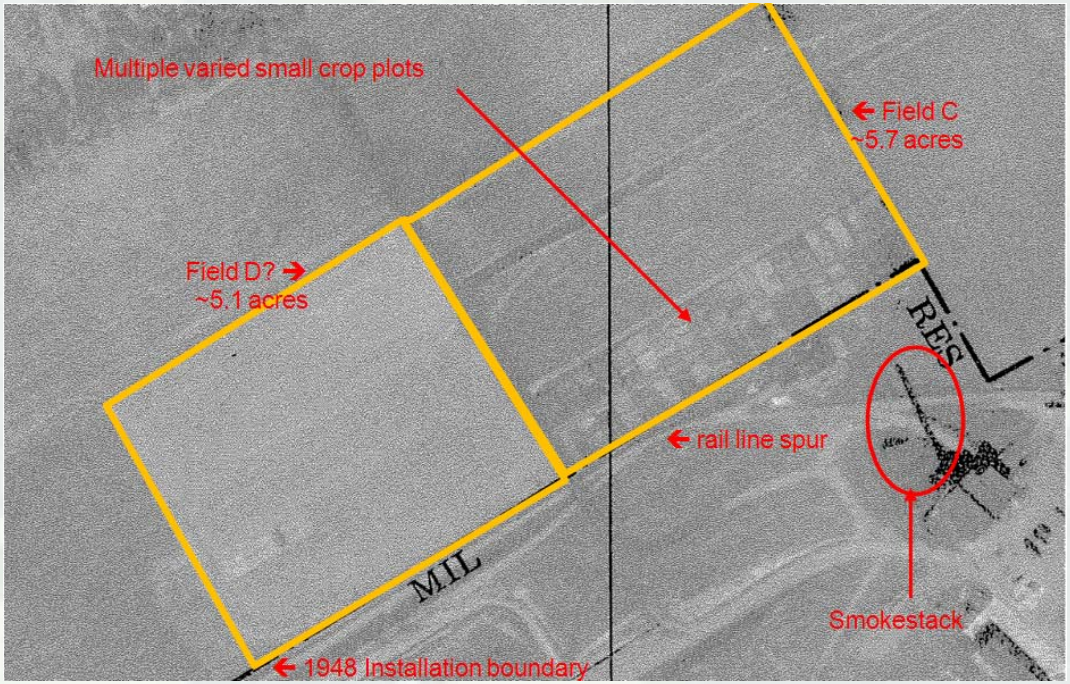
- 2,4,5-T applied to rows of soybeans and sweet potatoes in Area B by truck mounted sprayer along ~240 foot perpendicular path

1968 Test of Movement in Soil

- Two 20 by 20-foot test plots of Agent Orange applied to grasses / weeds on 21 May 1968
- Visual observations made two months later
- Residue samples taken six months and 1 year later to test persistency

Historic Locations – Within Present Day Area A

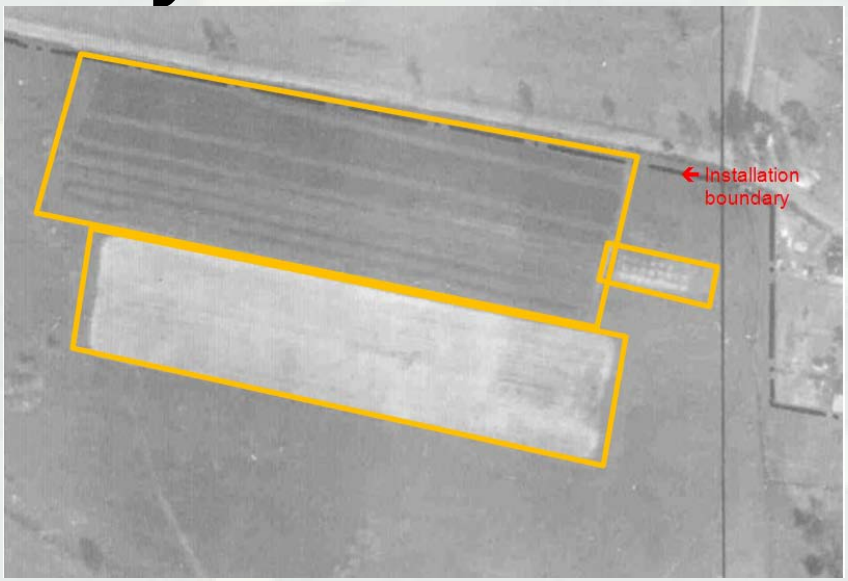
- 1944-1951 tests conducted at "Fields A, C, D, E and F" plus 2 other grass locations



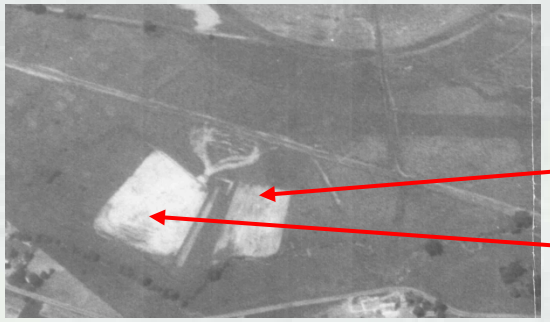
↑ *Area A - Annotated Aerial Imagery Sept.-Oct. 1947 - Field C and D – Probable locations*

Historic Locations – Within Present Day Area B

- 1946-1947 tests conducted at "Field B" in Area B along with one grass test and 1953 & 1968 in Area B



↑ *Area B - Annotated Aerial Imagery Sept.-Oct. 1947 – Field B Probable location in Area B*



Area B south of grid - Aerial Imagery 10 June 1953 – Probable location of truck mounted spray test (2 possible sites)

Identified Locations – Current Imagery

- Field C and D positively located
- Likely locations for Area B tests

Total Estimated Amounts of 2,4,5-T compounds tested at Detrick

- Total estimate would be on the order of 7.63 Kilograms (Kg) or **about 17 pounds between 1944 and 1968**
- Comparison: USDA determined the average US farm use rate of 2,4,5-T in 1969 was 0.24 to 2 lbs per acres with an average of 0.48 lbs per acres (ex.: 100 acres farm would use 48 lbs in one year)

“2,4,5-T Preliminary” Findings

- Findings through October 2010 are limited to documents identified to date
- Classified Material still under review
- Findings will be refined as more information located *(other reports, maps, aerial images, still pictures)*

ASR Path Forward

- 2,4,5-T Preliminary Report
- Full ASR for other past activities
- Challenges
  - Classified and sensitive material
  - Documents spread out
  - Complexity of information

Paradigm Answer:
Pick Two

Reality is closer to Pick One