**=================================** *ManagementUse Only* **================================**

**Submission Date** *(mm/dd/yyyy)***: Last update: Study #:**

**Study Sponsor:** LTER **or** USDA/ARS JER

**Final approval status:** approved / not approved **Final Approval Date** (mm/dd/yyyy)**:**

**GPS mapping completed** (mm/dd/yy):  **Person completing GPS mapping:**

**Study status** (**O**=ongoing, **C**=completed, **N**=never done, **T**=terminated before completion, **R**=under review)**: R**

**==================================================================================**

**Jornada Notification of Proposed Research**

**1. Title of proposed study:**

**2. Proposed starting date:**

**3. Anticipated duration:**

**4. Actual starting date** *(when available)*:

**5. Actual termination date**:

**6. \*Site location** *(Mark location on map and provide detailed description necessary to locate site. If coordinates are provided, Decimal Degree Lat Long or UTM coordinates are preferred over degree min sec Lat Long; in either case, provide the Datum used and the source of coordinates; e.g., GPS make/model, interpolated from map, etc.)***:**

**7. \*Principal Investigator responsible:**

name:

phone:

e-mail:

mailing address:

**8. \*Person(s) responsible for carrying out study/sampling:**

name:

phone:

e-mail:

mailing address:

status:

(JER Scientist/staff, NMSU Faculty, Staff, Post-doc, Ph.D. student, Masters student, Undergraduate, REU student, other Federal agency, State agency, Jornada LTER investigator, Other (describe))

**9. \*Study affiliation** *(check all that are applicable)***:**

**Organization**

**EPA \_\_**

LTER **\_\_** Jornada LTER (JRN)

**\_\_** *For a non-intersite study*, list non-Jornada **LTER** site(s) affiliated with this proposed research to be conducted at JRN. If JRN LTER is collaborating on this study, also check LTER: Jornada): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**\_\_ LTER Intersite** study(List participating LTER sites)**:**

**USDA** \_\_USDA-ARS Jornada Experimental Range

**\_\_** Other USDA: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**NMSU \_\_** NMSU Animal & Range Sciences Dept.

**\_\_** NMSU Biology Dept.

**\_\_** NMSU Fishery and Wildlife Sciences Dept.

**\_\_** NMSU Geography Dept.

**USGS \_\_**

**\*Other:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**STUDENTS** *(If this is a student project, indicate level of research)*

**\_\_** Undergraduate research - REU program

**\_\_** Undergraduate research -

course: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ instructor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**\_\_** Graduate research - Masters

**\_\_** Graduate research - Ph.D.

**10. Informative abstract** *(objectives and general methods.)*

**11. \*Site Identification:**

\_\_ **Temporary:** Use aluminum tag with LTER or USDA assigned study number.

***\_\_ Permanent:*** *Use aluminum stake with stamped LTER or USDA assigned study number.*

**12. \*Marking/Labeling***(of individual plots, samples, plants, etc.)* **:**

**13.** **\*Disturbance**:

**14. Sampling method** *(examples: sticky traps, sweep nets, pitfalls, etc.)***:**

**15. \*Chemicals used in field** *(examples: propylene glycol, Roundup, etc.)***:**

**16. \*Anticipated JER and/or JRN LTER resource needs**:

**17. Animal Care and Use Committee Authorization? Yes or No**

**If Yes,** what is the status of application?

**18. Hazardous Waste Use/Generation? Yes or No**

**If Yes, you must:**

1. Notify the JER Safety Officer, David Thatcher (575) 646-9400 or dthatche@nmsu.edu.
2. Agree to dispose of hazardous waste according to Federal guidelines and bear cost of disposal.
3. List the hazardous materials which will be used/generated and how it will be disposed.

**19. Coordination of GPS mapping of approved study site(s) is required to ensure compatibility with existing mapping efforts. Contact Scott Schrader (schrader@nmsu.edu, 575-646-5180) prior to initiating your research.**

**Have you initiated contact with them to have your site “GPS located”? Yes or No**

**Submit GIS shapefile (or geodatabase), GIS metadata, coordinate system, and Google Earth kmz or kml.** Request assistance if needed. Record GPS location and brief description of transects, plots, sampling schemes, construction, instrumentation, etc., as well as the area of interest (AOI) if not already defined, e.g., by plot outline.

**What is the design of your study? Transect \_\_\_ Grid \_\_\_ Point \_\_\_ Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**20. Site use authorization:**

*Prior to initiation of study/sampling, the individuals indicated below are to be informed of the research request, be provided pertinent information of the proposed study/sampling for review, coordinate with parties as required, and give authorization for research.*

Authorization Date

required Authorization obtained

# Name Phone/E-mail Affiliation (NO YES) obtained by (mm/dd/yyyy)

Brandon Bestelmeyer 646-4842/bbestelm@nmsu.edu JER YES

John Anderson 646-5818/janderso@nmsu.edu LTER YES

**21. \*Comments:**

**\* See “Clarification of ‘Notification of Proposed Research’ line items”**

**ATTACHMENTS:**

1) General Information (acknowledgments, data availability and documentation)

2) Clarification of “Notification of Proposed Research” line items

3) Chemical example (Item #15)

**ATTACHMENT 1**

**General Information**

1. The following **acknowledgment statements** are to be included in publications resulting from USDA-ARS Jornada Experimental Range or Jornada LTER supported research.

**LTER**:

“This work was supported by NSF Grant DEB- 1235828, as a contribution to the Jornada Long-Term Ecological Research (LTER) program.”

**USDA**:

“This work was supported by the United States Department of Agriculture, Agricultural Research Service, Jornada Experimental Range with funding by the USDA and the National Science Foundation (Grant DEB- 1235828).”

2. The following **acknowledgment statement** is to be included in publications where funding support was not provided by USDA-ARS Jornada Experimental Range or Jornada LTER program.

“The Jornada Experimental Range is administered by the USDA-ARS and is a Long Term Ecological Research site funded by the National Science Foundation. “

3. It is requested that one copy of published papers and citation of completed thesis be provided when available (PDF format preferred).

e-mail: [janderso@nmsu.edu](mailto:janderso@nmsu.edu)

John Anderson

USDA Jornada Experimental Range

New Mexico State University

P.O. Box 30003, MSC 3JER

Las Cruces, NM 88003-8003

4. Data and its metadata (data documentation) is to be provided to USDA or LTER in accordance with current procedures for inclusion in Information Management System where long-term archival will be provided. Additionally, data derived from Federal funds will be made public with permission of the Responsible Investigator once data is published or 2 years after completion of data collection, whichever is sooner unless an exception is made by the JER Research Leader or the LTER Executive Committee.

**ATTACHMENT 1 1 of 1**

**ATTACHMENT 2:**

**Clarification of “Notification of Proposed Research” line items** (Numbered sections correspond to those on the “Notification of Proposed Research” Notification form.)

**6. Site location:** Be as explicit as possible so site can be located using your description. In addition, the site(s) will be GPS referenced for our GIS information system.

**7. Principal Investigator responsible:** If student research, this would identify the student’s advisor for REU, thesis, dissertation, or course work. Otherwise, it is the person ultimately responsible for overseeing, managing, and publishing the results of the study.

**8. Person(s) responsible for carrying out study/sampling:** It is the person (or persons) responsible for execution of the study; the person (or persons) who actually conducts the study. This might be the same as the Principal Investigator. It might also be the student whose project it is, other collaborating scientist, or staff researcher.

**9. Study affiliation (check all that are applicable):** The study is specifically affiliated with what organization(s)?

**\_\_ Other:** Give full name. Do not use acronyms.

**11. Site Identification:** Obtain study number from USDA-ARS or LTER Site Manager.

**12. Marking/Labeling (of individual plots, samples, plants, etc.)**

Examples: wooden stakes, rebar, red flagging, aluminum tags wired to aluminum nails in ground, buried litter bags, etc.

**13.** **Disturbance:** Soil cores of greater than 1-inch diameter or other excavations must be refilled immediately unless otherwise approved using soil representative of that removed.

Examples of types of disturbances: soil cores (what diameter?), soil pits (what size?), nest excavation (estimate size of disturbance), destructive harvesting of plants, etc.)

**15. Chemicals used in field:** Researcher must provide Material Safety Data Sheet (MSDS) and other documentation that describes use and environmental fate/exposure potential. This should include terrestrial fate, aquatic fate, and atmospheric fate; biodegradation, abiotic degradation, bioconcentration, soil adsorption/mobility, volatilization from water/soil; longevity; probable routes of exposure. An example using Benomyl (fungicide) will be provided upon request.

**16. Anticipated JER and/or JRN LTER resource needs:** Be as specific as possible including period and length of time for which resources are requested.

**LAB**: space, equipment, assistance, etc.

**field**: assistance, monitored equipment, heavy equipment, backhoes, materials, water, misc. supplies, additional GPS, etc.)

**21. Comments:** Additional information as needed to further clarify the study or issues that should be resolved prior to initiation of study.

**ATTACHMENT 2 1 of 1**

**ATTACHMENT 3:**

**Chemical example** from “**Notification of Proposed Research form” (Item #15)**

**Chemical: Benomyl**

**Environmental fate/exposure potential**

Benomyl is used as a protective and eradicant fungicide. Benomyl released to soil will not tend to leach, but volatilization of benomyl from soil may be significant.

**Terrestrial fate:**

Benomyl released on or into soils will not move downward or leach extensively **[reference]**. Volatilization of benomyl from soil may be significant (estimated vapor loss of benomyl from soil was 3.5 to 6.5 kg/ha/yr or more) **[reference]**. Intact benomyl, applied as a solid in aqueous suspension, decomposes rapidly in soil. Four weeks after the application of 5 pounds of benomyl/acre to soil in Florida, North Carolina and Delaware, no intact benomyl was found in the Florida and Delaware soils and only 7% remained in the North Carolina soil. The major and minor degradation products were methyl 2-benzimidazolecarbamate (MBC) and 2-aminobenzimidazole (AB), respectively **[reference]**. The half-life of the benzimidazole-containing residues was about 3-6 months on turf and about 6-12 months on bare soil **[reference]**. In another study, degradation of benomyl occurred within 15 days in unsterilized soil **[reference]**.

**Aquatic fate:**

Benomyl released to water will have a low to moderate tendency to sorb to sediments, suspended sediments and biota and will not tend to bioconcentrate. No information was found about volatilization from water. In water, benomyl will hydrolyze **[reference]**. One study reported that the conversion of benomyl (approx 40 ppm) to methyl 2-benzimidazole carbamate (MBC) was complete within one week **[reference]**.

**Atmospheric fate:**

Benomyl may enter the atmosphere in the vapor phase or sorbed to particulate matter. A computer estimated half-life for benomyl in the vapor phase in the atmosphere is 1.6 hours due to reaction with photochemically generated hydroxyl radicals **[reference]**.

**Biodegradation:**

Mixed cultures from soil and water were able to use benomyl as a sole carbon source, but the degradation rate was slow **[reference]**.... Decomposition (16-34%) of 14C ring-labeled benomyl, during 6 and 12 months incubation periods, occurred only in nonsterilized soil. Ring cleavage of the benzimizazole nucleus and metabolism of this moiety of CO2 is apparently related to the presence of microorganisms **[reference]**.

**Abiotic Degradation:**

In water, the conversion of benomyl to MBC is completed within one week **[reference]**. Benomyl in soil is easily hydrolyzed to MBC **[reference]**.

**Bioconcentration:**

An estimated bioconcentration factor (BCF) for benomyl, using a water solubility of 3.8 ppm, is 290 **[reference]**. This indicates that benomyl does not have a strong tendency to bioconcentrate.

**Soil Adsorption/Mobility:**

In a field study on the fate of benomyl applied to bare soil and to turf, benomyl and its degradation products showed little or no downward movement through the soil (Keyport silt loam, Cecil loamy sand, and Leon Immokalee fine sand) **[reference]**. Lab and greenhouse experiments... showed that benomyl and it’s two soil metabolites... were immobile soils (organic matter ranged from 0.7 to 83.5 percent) and did not leach or move

significantly from the site of application **[reference]**. Another study also found that benomyl was not mobile in soil **[reference]**.... An estimated soil adsorption coefficient (Koc), using a water solubility of 3.8 ppm is 2,100 **[reference]**. This indicates that benomyl will be immobile in soil since it will be quite tightly bound to soil organic matter. Leaching will not be extensive. *Benomyl released to the surface of soils may be transported by wind erosion or surface runoff since it will strongly sorb to organic matter in soils.*

**ATTACHMENT 3 1 of 2**

**ATTACHMENT 3**

**Volatilization from Water/Soil:**

One study estimated that from 3.5 to 6.5 kg benomyl/ha/year or more would vaporize from a loam soil at 25oC under annual rainfall of 150 cm **[reference]**. No information was found on benomyl volatilization from water and no Henry’s Law constant could be calculated since a quantitative vapor pressure was not found.

**Effluent Concentrations:**

Benomyl or its degradation product were detected leachate near a pesticide plant in Barcelona, Spain at concn range of 5-10 ppm **[reference]**.

**Probable Routes of Human Exposure:**

Humans may be exposed to benomyl through dermal contact when it is mixed and used, through inhalation of dust particles to which it has sorbed in fields where it is used, and from dermal contact from picking fruits and vegetables that have been sprayed with benomyl. For example, strawberry harvesters were found to be dermally exposed to benomyl **[reference]**.

[List of reference citations

**ATTACHMENT 3 2 of 2**