**=================================** *Management Use 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/yyyy): **Person completing GPS mapping:**

**Study status** (**O**=ongoing, **C**=completed, **D**=not approved, **N**=never initiated, **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**

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

**\_\_** Non-Jornada LTER led study (list lead site and other sites involved): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is this a cross-site LTER study? Mark one: Yes No

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

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

Is this an LTAR study? Mark one: Yes No

**NMSU \_\_** List department: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**USGS \_\_** List unit/center(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**\*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.)***?** Mark one: Yes No

***If Yes****, the Safety Data Sheet (SDS) from the manufacturer of the chemical(s) must accompany submission of this form. If you are aware of environmental information relative to your application that is lacking in the SDS, please provide this and the source of the information. See Attachment 3 as an example from a SDS with environmental information that will add substance to your submission if available.*

List chemicals:

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

**17. Animal Care and Use Committee Authorization?** Mark one: Yes No

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

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

**If Yes, you must:**

1. Notify David Thatcher at (575) 646-9405 or dave.thatcher@usda.gov.
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 (scott.schrader@usda.gov, 575-646-5180) prior to initiating your research.**

**Have you initiated contact with Jornada staff to have your site “GPS located”?** Mark one: Yes 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 obtained

# Name Phone/E-mail obtained by (mm/dd/yyyy)

Brandon Bestelmeyer [646-4842/Brandon.Bestelmeyer@usda.gov](mailto:646-4842/Brandon.Bestelmeyer@usda.gov)

John Anderson [646-5818/janderso@nmsu.edu](mailto:646-5818/janderso@nmsu.edu)

**21. Have principal investigator(s) read and understood policies for conducting research on JER and CDRRC (Attachment 1)?**

Mark one: Yes No

**22. \*Comments:**

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

**ATTACHMENTS:**

1) Policies (acknowledgments, data availability and documentation)

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

3) Example of environmental chemical interactions (Item #15)

**ATTACHMENT 1**

**Policies for conducting research at the Jornada Experimental Range and affiliated programs**

The policies below apply to research taking place on the USDA-ARS Jornada Experimental Range (JER) and/or the Chihuahuan Desert Rangeland Research Center (CDRRC) of New Mexico State University. They also apply to research receiving financial support or assistance from the USDA-ARS Jornada Experimental Range and/or the Jornada Basin LTER (sponsored by NSF) programs.

1. Within 6 months of approval of this notification form, researchers are required to update research plans and project metadata in the Jornada study database. Consult the Jornada websites, John Anderson ([janderso@nmsu.edu](mailto:janderso@nmsu.edu)), or the LTER Information Manager ([datamanager.jrn.lter@gmail.com](mailto:datamanager.jrn.lter@gmail.com)) for further information.

2. The following **acknowledgment statements** are to be included in publications receiving financial support or research assistance from the USDA-ARS Jornada Experimental Range and/or Jornada Basin LTER.

|  |  |
| --- | --- |
| **LTER:** | “This work was supported by NSF Grant DEB-1832194, as a contribution to the Jornada Basin Long-Term Ecological Research (LTER) program.” |
| **USDA:** | “This work was supported by CRIS# 3050-11210-009-00D from the USDA-ARS Jornada Experimental Range and USDA Long-Term Agroecosystem Research Network” |

3. The following **acknowledgment statement** is to be included in publications from studies that took place at JER, but where funding or research support was not provided by the USDA-ARS Jornada Experimental Range or Jornada Basin LTER programs.

“The Jornada Experimental Range is administered by the USDA-ARS and is supported by the National Science Foundation Long-Term Ecological Research Program and the USDA Long-Term Agroecosystem Research Network.”

And/or if research took place at the CDRRC.

“The Chihuahuan Desert Rangeland Research Center is administered by New Mexico State University”.

4. Copies of published papers and completed theses should be provided when available (PDF format preferred).

|  |  |
| --- | --- |
| e-mail to: [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 |

5. The USDA-ARS Jornada Experimental Range and Jornada Basin LTER adhere to USDA (<https://ltar.ars.usda.gov/data-policy/>) and LTER Network (<https://lternet.edu/data-access-policy/>) data access policies, respectively. Therefore, research data and metadata (data documentation) originating from all Jornada studies must be provided to Jornada Information Management (IM) staff following the guidelines below:

* 1. Studies supported by Jornada USDA or LTER funds are required to **submit data and metadata files on a yearly basis** for inclusion in the Jornada archive of ongoing research. These datasets will be published in USDA- or LTER-approved data repositories at the time research results are peer-reviewed and published, or no later than 2 years after data collection. Delays to this process are only permitted when explicitly approved by USDA or LTER leadership.
  2. Studies supported by other funds but taking place on the JER or CDRRC must provide data and metadata to Jornada IM staff on conclusion or publishing of the study OR provide links to relevant datasets published in open access repositories.

Contact the Jornada Information Management team ([datamanager.jrn.lter@gmail.co](mailto:datamanager.jrn.lter@gmail.co)m) for more information or to submit data.

6. The Jornada Experimental Range is administered by the USDA ARS for long-term research by USDA staff and is closed to the public. The USDA welcomes outside researchers conducting studies that fall within the mission of the Jornada Experimental Range. Professional conduct is expected of all persons doing research on the Jornada Experimental Range. Unprofessional conduct and violations of USDA policy1 and local laws, including harassment, abuse, theft, or unauthorized use of property, possession of firearms, and failure to comply with directions of the Ranch Supervisor or Research Leader, will be grounds for dismissal from the Jornada Experimental Range and termination of the associated study.

1 See<https://www.usda.gov/sites/default/files/documents/usda-anti-harassment-policy.pdf>; <https://www.ocio.usda.gov/document/departmental-regulation-4070-735-001>.

**ATTACHMENT 1 2 of 2**

**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:**

**Example of environmental chemical interactions relative to “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. 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). 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. The half-life of the benzimidazole-containing residues was about 3-6 months on turf and about 6-12 months on bare soil. In another study, degradation of benomyl occurred within 15 days in unsterilized soil.

**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. One study reported that the conversion of benomyl (approx 40 ppm) to methyl 2-benzimidazole carbamate (MBC) was complete within one week.

**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.

**Biodegradation:**

Mixed cultures from soil and water were able to use benomyl as a sole carbon source, but the degradation rate was slow. 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.

**Abiotic Degradation:**

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

**Bioconcentration:**

An estimated bioconcentration factor (BCF) for benomyl, using a water solubility of 3.8 ppm, is 290. 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). Lab and greenhouse experiments showed that benomyl and it’s two soil metabolites were immobile in soils (organic matter ranged from 0.7 to 83.5 percent) and did not leach or move significantly from the site of application. Another study also found that benomyl was not mobile in soil. An estimated soil adsorption coefficient (Koc), using a water solubility of 3.8 ppm is 2,100. 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. 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 in leachate near a pesticide plant in Barcelona, Spain at concentration ranges of 5-10 ppm.

**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.

**References:**

[List of reference citations]

**ATTACHMENT 3 2 of 2**