

# Natural Resources Research Update Standard Operating Procedure

## **Introduction**

The primary purpose of the Natural Resources Research Update (NRRU) is to transfer the latest ARS research results to our customers. This will allow ARS' customers to implement ARS' technology such that it positively impacts their individual missions and operations. The secondary purpose of the Natural Resources Research Update is to allow ARS to get feedback from its customers about the impact of ARS' technology.

The target audience for the Natural Resources Research Updates is private, state and federal government land managers and conservationists, farmers and ranchers, and research organizations. Therefore, the updates need to be written in such a way as to be useful to this audience. Although the general public will have access to the updates, they are not the target audience, so the updates do not need to be written for laymen. The format of the updates is at the discretion of the Research Leader (RL) and scientist, but each update should explain the technology, what it should/can be used for, who should consider implementing it, and how it should be implemented. Furthermore, to promote scientific accuracy, the data and information in the update must only come from the scientist(s) peer-reviewed manuscripts and contain proper references to those manuscripts. Since some journals may be reluctant to re-publish data that has already been published in a Natural Resources Research Update, this restriction to peer-reviewed data will ensure the updates do not interfere with the scientist's ability to publish the data in peer-reviewed journals.

## **Research Update Preparation**

Updates are prepared when the scientists and RL believe the information in one or more peer reviewed publications would be of benefit to their customers and stakeholders. The ARS scientist prepares the update and pastes it into the Natural Resources Research Update form (Appendix A).

The update will include:

- The scientists' names and location(s)
- Title
- Abstract (which will be identical to that in the 115)
- Text which explains the technology, what it should/can be used for, who should consider implementing it, and how it should be implemented. To promote scientific accuracy, the data and information in the update must only come from the scientist(s) peer-reviewed manuscripts and contain proper references to those manuscripts.

## **Research Update Approval**

The scientist completes the ARIS-115 for the Natural Resources Research Update by following the instructions in the NRRU ARIS-115 Instructions. The Natural Resources Research Update will be approved through the ARS-115 system to the RL/LD/CD level. If the 115 is coded as a high priority project approval will also be done at the Area Office level.

## **Research Update Review**

Once the Natural Resources Update 115 has been approved, the scientist sends the MS Word version of the update to the Natural Resources Research Update Manager, Bryan Kaphammer ([bryan.kaphammer@ars.usda.gov](mailto:bryan.kaphammer@ars.usda.gov) ph: 970-492-7028).

The Natural Resources Research Update Manager sends the complete research update to the Technology Transfer Coordinator (TTC) in the scientist's Area.

The TTC will send any questions or comments to the Update Manager ([bryan.kaphammer@ars.usda.gov](mailto:bryan.kaphammer@ars.usda.gov) ph: 970-492-7028) who will pass them on to the RL and scientists. The RL and scientist will address the comments/suggestions. If no questions/comments are received after ten business days, the Update Manager will distribute the update to subscribers.

## **Distribution of Research Update**

1. The Natural Resources Research Update Manager will enter the update into the system, give it a unique number (which will be the same as the ARS-115 log number), and confirm the 115 has been approved.
2. The Natural Resources Research Update Manager sends a PDF of the update to subscribers. The update is also sent to the Area Office and the NPL.
3. The Natural Resources Research Update Manager archives the update on the NRRU web site.

## **Subscribing to Research Updates**

To sign up for the updates, subscribers go to <http://www.ars.usda.gov/npa/nrru> and complete the subscribers form. This form is sent to Bryan Kaphammer ([bryan.kaphammer@ars.usda.gov](mailto:bryan.kaphammer@ars.usda.gov), ph: 970-492-7028) who will enter the subscriber's email address into the appropriate group(s).

Anyone with a valid email address can subscribe to the Natural Resources Research Update (with the exception of persons from countries still on the banned country list).

## **Soliciting Feedback From Subscribers**

Periodically or at the request of a scientist, RL/LD/CD, AD, or NPL the Natural Resources Research Update Manager will email subscribers in a particular keyword category and ask for feed back as to the value of the updates. The Manager will ask for descriptions of specific use of specific technology and the value or impact that technology had on their operation. This information will be sent to the requester, the scientist, and the NPL.

Subscribers will also be encouraged to provide feedback about an individual research update by simply responding to the email containing the update.

## **Questions?**

Send any questions or comments to [NRRU.update@ars.usda.gov](mailto:NRRU.update@ars.usda.gov) or call Bryan Kaphammer ([bryan.kaphammer@ars.usda.gov](mailto:bryan.kaphammer@ars.usda.gov) ph: 970-492-7028).



United States Department of Agriculture  
Research, Education and Economics



Agricultural Research Service  
Date:

# Natural Resources Research Update

ARS would like your feedback as to the value of this technical update. You can provide feedback about this specific update by responding to this email or send your comments to [NRRU.update@ars.usda.gov](mailto:NRRU.update@ars.usda.gov) and refer to technical update number:

Title:

Contributing Scientists:

Location:

Abstract:

Text:

As the principal in-house research arm of the U.S. Department of Agriculture, the Agricultural Research Service has a mission to: Conduct research to develop and transfer solutions to agricultural problems of high national priority and provide information access and dissemination to ensure high-quality, safe food, and other agricultural products, assess the nutritional needs of Americans, sustain a competitive agricultural economy, enhance the natural resource base and the environment, and provide economic opportunities for rural citizens, communities, and society as a whole.

The U. S. Department Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

## *Process/procedures for preparing & submitting a Natural Resources Research Update(NRRU)*

---

- ARS SYs working in the National Programs for Natural Resources research who wish to submit a Natural Resources Research Update (NRRU) need to contact Dr. Bryan Kaphammer for information and instruction.
- Dr. Kaphammer is the OTT/Technology Transfer Coordinator for the Northern and Southern Plains Areas and Manager of the NRRU web site. He can be reached at [bryan.kaphammer@ars.usda.gov](mailto:bryan.kaphammer@ars.usda.gov) or 970-492-7023.
- At the present time, the updates are provided for Natural Resources related programs and projects only.
- ARIS data entry instructions and screen prints are on pages 3-6.
- The SY prepares a draft of the NRRU and forwards it via e-mail to Dr. Kaphammer for his review and comment.
- Dr. Kaphammer reviews the draft NRRU and provides e-mail authorization to proceed with entering the NRRU into ARIS.
- The SY forwards an electronic copy (Word document) of the approved NRRU release to the Unit ARIS Operator to use for the data entry into the ARS-115 system. An example of the NRRU is on the next page (page 2).
- The SY preparing and submitting the NRRU will be the Submitter and Contact scientist, and the only ARS author listed on the 115 NRRU entries.
- The date the NRRU draft is e-mailed to Dr. Kaphammer will be the date to enter into the Date Submitted to Journal block.
- The Acceptance and Publication Dates will be the same date for each block and will be the date on the e-mail Dr. Kaphammer sends to the ARS SY with instructions to proceed with entering the 115 into ARIS.
- The 115 Log Number will also be used as the NRRU reference number. The Unit does not need to maintain a separate list or data base.
- This will ensure the 115 aligns with the official posting date of the NRRU to [NRRU.update@ars.usda.gov](mailto:NRRU.update@ars.usda.gov)
- *Publications contributing to the NRRU Release* must be listed at the end of the Technical Abstract narrative. See the screen prints on pages 5-6 for details.
- Listing the *Publications contributing to the NRRU Release* serve the following purpose:
  - Provides additional authority and credibility by documenting the peer reviewed manuscripts supporting the research addressed in the NRRU release.
  - Allows the NRRU subscriber to pursue additional information on the subject matter without incurring delays in waiting for responses from the ARS scientist(s) listed on the NRRU.



United States Department of Agriculture  
Research, Education and Economics



Agricultural Research Service

# Natural Resources Research Update

ARS would like your feedback as to the value of this technical update. You can provide feedback about this specific update by responding to this email or send your comments to [NRRU.update@ars.usda.gov](mailto:NRRU.update@ars.usda.gov) and refer to technical update number:

**ARS GIVES NO WARRANTIES OR GUARANTEES, EXPRESSED OR IMPLIED, FOR THE INFORMATION IN THIS UPDATE, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

Title: Spatial and temporal variability affect soil microorganism activity in high production corn systems.

Contributing Scientists: Brian Wienhold

Location: Agroecosystem Management Research Unit, Lincoln, NE

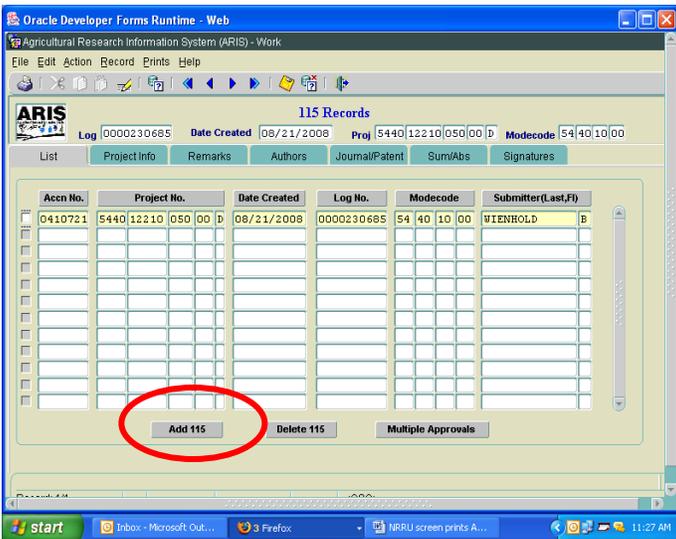
Text: Soil microorganisms are involved in residue decomposition, nutrient cycling, and plant health. Understanding the spatial and temporal variability in microbe activity and the role of soil management is essential for maintaining the soil biota. A field study demonstrated that soil exhibited spatial variation in inherent properties (e.g. depth of topsoil, clay content) but soil microorganism did not. Soil microorganisms were associated with soil organic C fractions and these associations were most likely related to the role of microorganisms in soil aggregation (Grigera et al., 2006). The distribution of soil microorganisms is influenced by management practices such as in-row cultivation where redistribution of crop residue creates an enhanced zone for soil microorganisms when residue is concentrated in the row. This enhanced zone may benefit the crop as nutrients in the residue become available (Grigera et al., 2007a). Mycorrhizal fungi positively affect plant growth and play an important role in P nutrition. Mycorrhizal fungi may benefit high production corn crops by facilitating P uptake during the reproductive stages (Grigera 2007b). The increase in mycorrhizal growth during the reproductive stages of corn were associated with an increase in the hyphal network and not increased sporulation (Grigera 2007c). Producers should incorporate management practices such as reduced tillage and residue retention that are least detrimental to the soil biota. As fertilizer prices increase selecting varieties that are susceptible to mycorrhizal infection may improve fertilizer use efficiency.

Grigera, M.S., R.A. Drijber, K.M. Eskridge, and B.J. Wienhold. 2006. Soil microbial biomass relationships with organic matter fractions in a Nebraska corn field mapped using apparent electrical conductivity. *Soil Science Society of America Journal* 70:1480-1488.

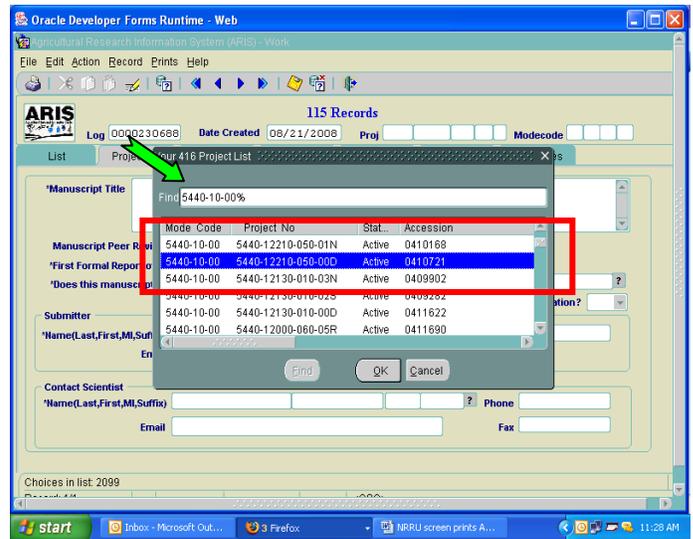
Grigera, M.S., R.A. Drijber, and B.J. Wienhold. 2007a. Redistribution of crop residues during row cultivation creates a biologically enhanced environment for soil microorganisms. *Soil and Tillage Research* 94:550-554.

Grigera, M.S., R.A. Drijber, and B.J. Wienhold. 2007b. Increased abundance of arbuscular mycorrhizal fungi in soil coincides with the reproductive stages of maize. *Soil Biology and Biochemistry* 39:1401-1409.

Grigera, M.S., Drijber, R.A., Shores-Morrow, R.H., and Wienhold, B.J. 2007c. Distribution of Arbuscular Mycorrhizal Biomarker C16:1*cis*11 Among Neutral-, Glyco-, and Phospho-Lipids Extracted from Soil During the Reproductive Growth of Corn. *Soil Biology and Biochemistry* 39:1589-1596.

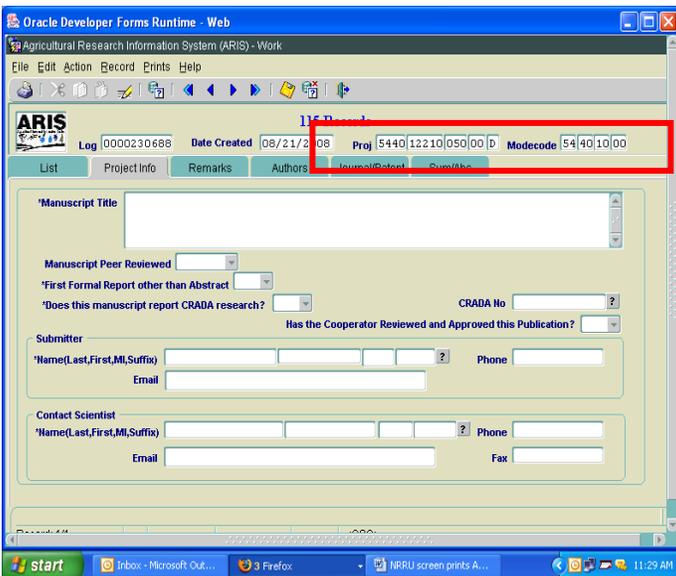


- Click on the **Add 115** button

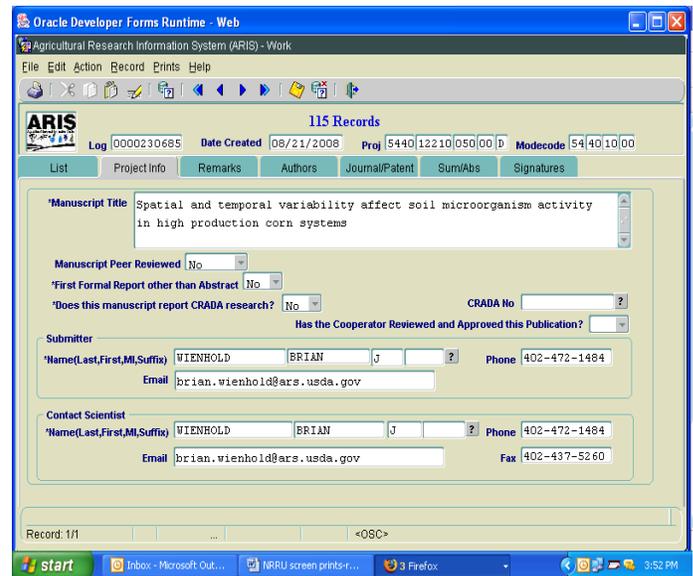


➔ Type the full mode code in front of the % symbol (use dashes, e.g., 5440-10-00)

- Click on the **Find** button
- Scroll down and highlight the Project Number the NRRU will be applied to
- Click on the **OK** button

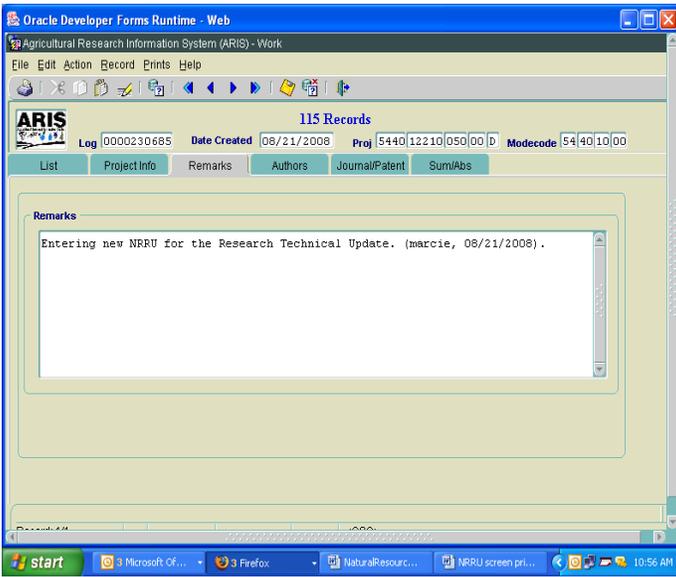


- The Project Number and Mode Code cannot be revised or corrected once they are selected and accepted.
- Check the Project Number and Mode Code entries in the upper right corner of the screen to ensure accuracy (red rectangle).
- If the Project Number and/or Mode Code are **not** correct: Exit out and respond No when the query appears for saving the entry.
- Start over by clicking on the **Add 115** button.

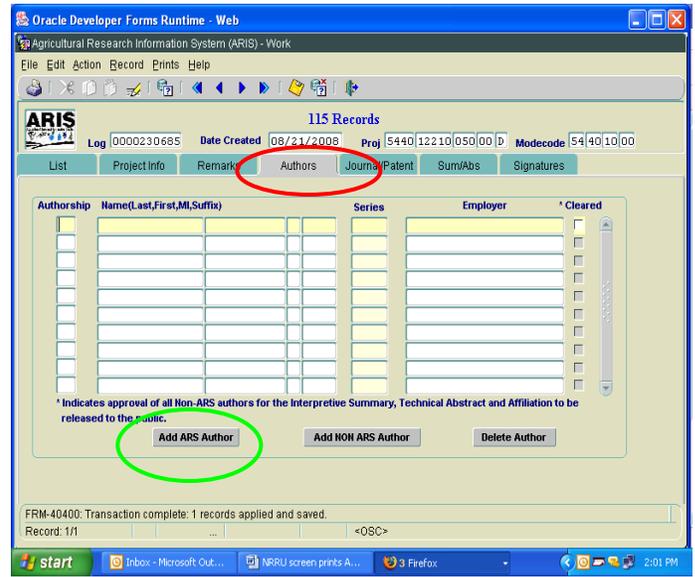


**If the Project Number and Mode Code are correct:**

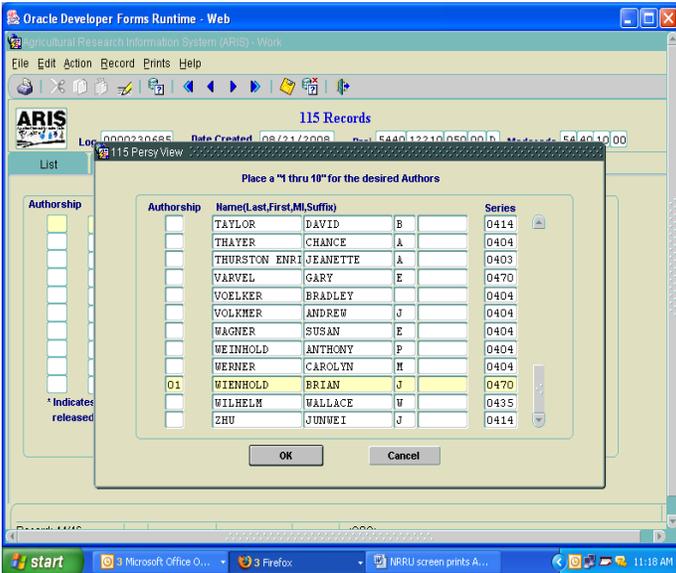
- Enter the Title in the Manuscript Title block
- Select No from the **▼ drop down menu buttons** for the Manuscript Peer Reviewed, 1<sup>st</sup> Formal Report, and Report CRADA research blocks.
- Enter the Submitter and Contact information; include the Email address in each block.
- Click on the **Save icon**



- Click on the **Remarks** tab and enter information relevant to the NRRU, etc.
- Click on the **Save** icon.

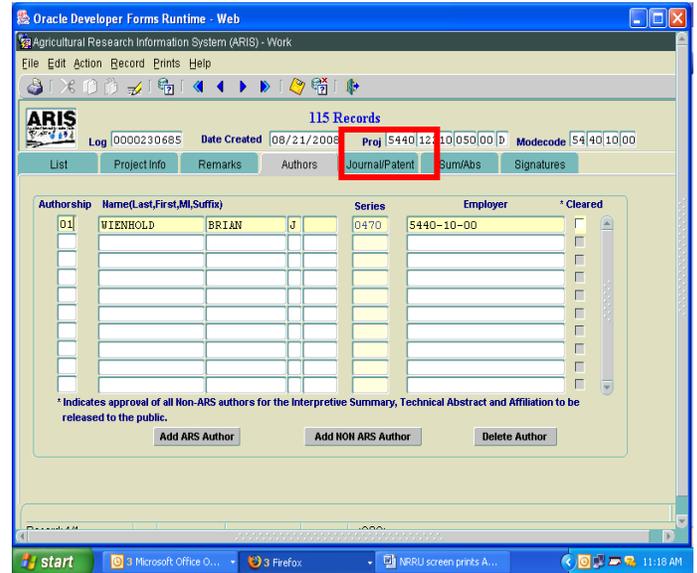


- Click on the **Authors** tab.
- Click on the **Add ARS Author** button.

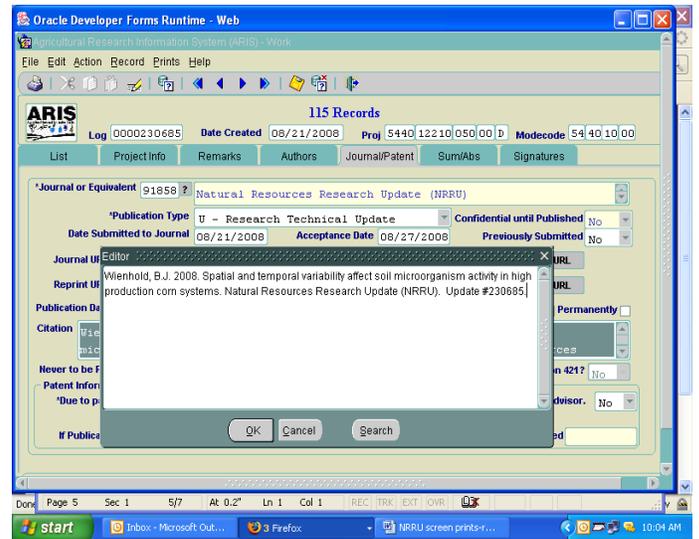
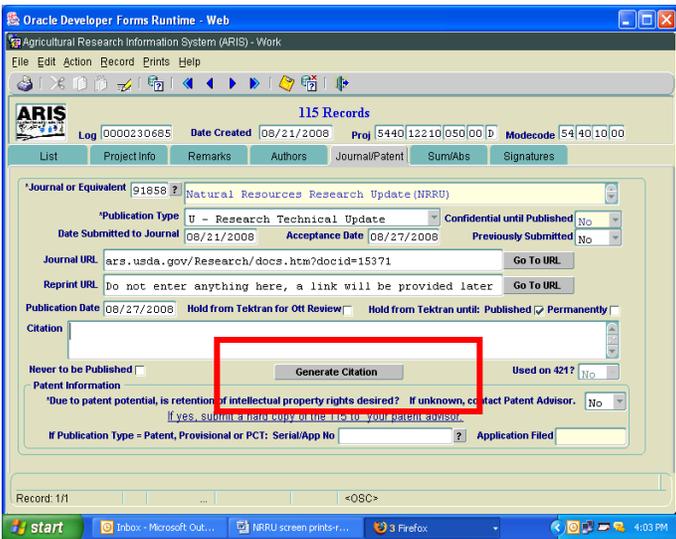


- A list of the employees in the Unit will appear.
- **Highlight the name of the SY submitting the NRRU and enter 01 in the Authorship column to the left of the name.**
- Click on the **OK** button.

**Reminder:** Only one author is listed and it is always the ARS SY submitting the NRRU.

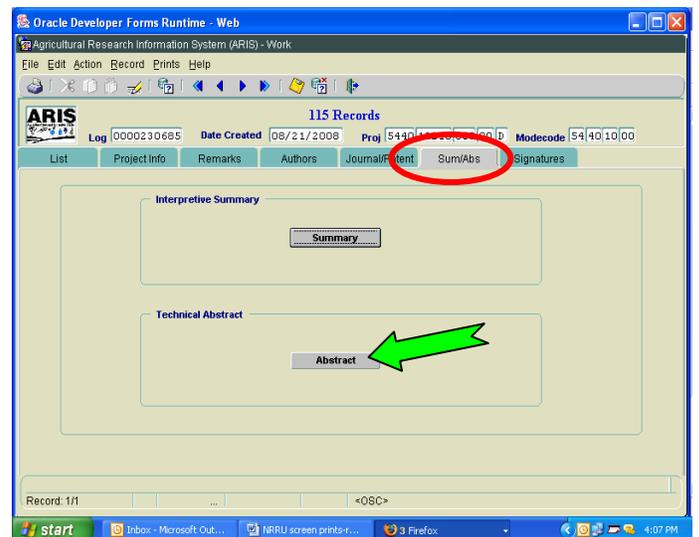
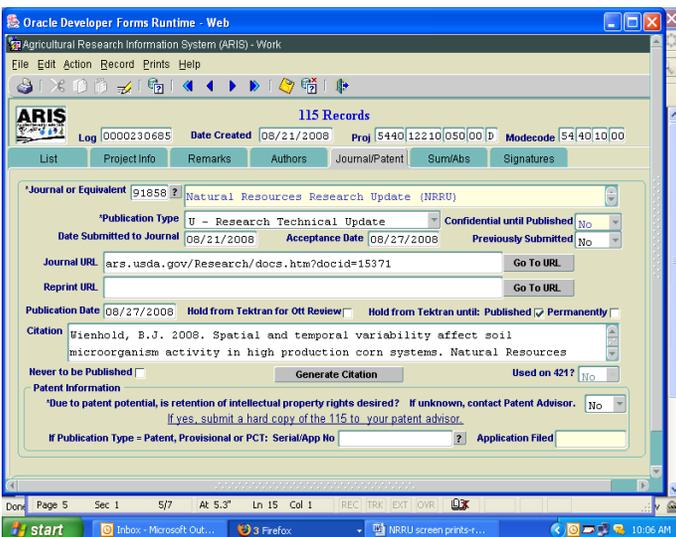


- The screen above appears listing the selected ARS author (should be the same as the Submitter and Contact scientist entered earlier).
- Double-check the entry to ensure accuracy. **If incorrect:** click on the Delete Author button and then click on the Add ARS Author button and select/enter the correct ARS author.
- Click on the **Save** icon.
- Click on the **Journal/Patent** tab (red rectangle).



- **Journal or Equivalent code for the NRRU:** 91858
- **Publication Type:** Select U = Research Technical Update
- **Date Submitted to Journal:** Use the date on the e-mail for submitting the draft NRRU to Dr. Kaphammer for his review
- **Previously Submitted:** No
- **Acceptance Date and Publication Date blocks:** Both dates will be the same and the date on the e-mail Dr. Kaphammer sends to the ARS SY (providing instructions to proceed with entering the 115) should be the date used in both blocks.
- **Journal URL:** [ars.usda.gov/Research/docs.htm?docid=15371](http://ars.usda.gov/Research/docs.htm?docid=15371)
- **Reprint URL:** Leave blank until notification providing a specific link to the pdf posting of the NRRU is received
- **Hold from Tektran until Published block:** Always enter a ✓ mark. This will ensure the 115 aligns with the official posting date of the NRRU to [NRRU.update@ars.usda.gov](mailto:NRRU.update@ars.usda.gov)
- **Patent Information:** No

- Click on the **Generate Citation button** (red rectangle as shown on the above left screen print).
- Double-click within the Citation block to open the Editor screen (the Editor screen is shown above).
- Enter **Update #....** at the end of the Citation as shown above. The NRRU Update # is the ARS-115 log number. The NRRU posted to the website and the ARS-115 will have the same log number. This will eliminate any confusion, the need for maintaining a separate list or database, and allow for consistent tracking and documentation.
- Click on the **OK button** at the bottom of the screen.

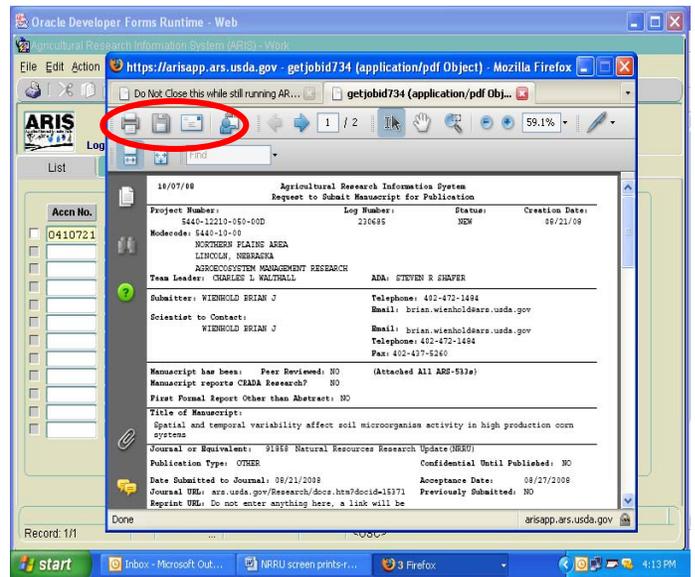
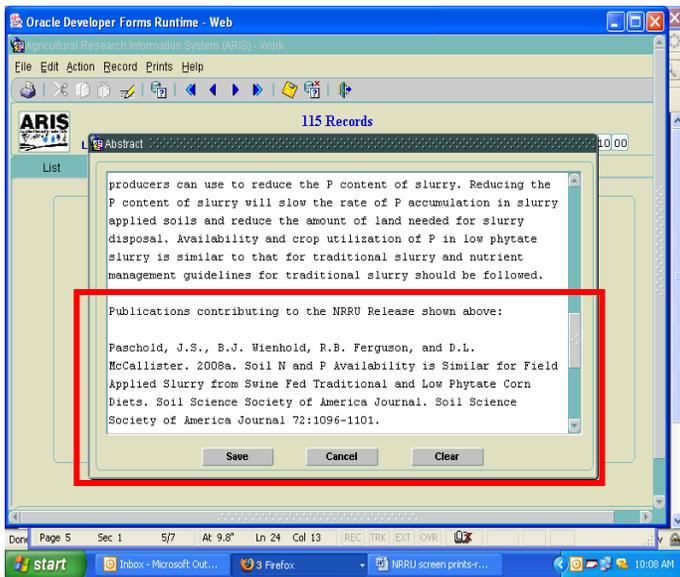


The completed screen should appear as shown above.

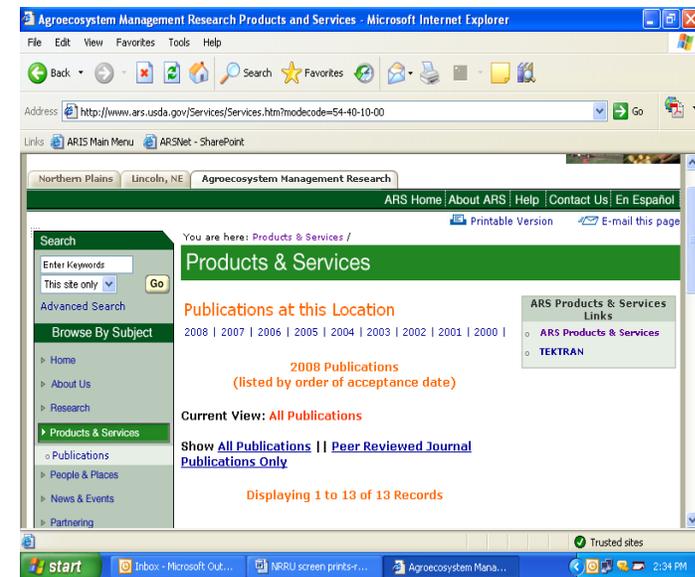
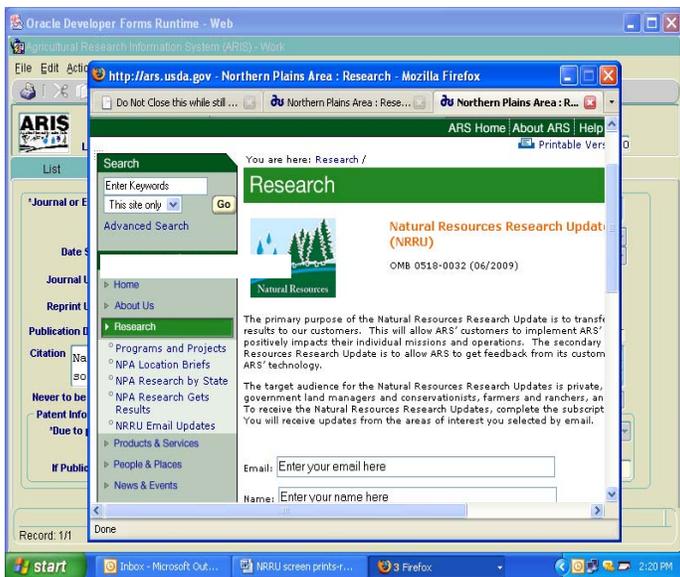
- Click on the **Save icon**.

- Click on the **Sum/Abs tab** (red oval).
- Click on the **Abstract tab** and enter the narrative from the NRRU (Word document provided by the SY).

**NOTE:** Only the Technical Abstract (TA) is entered. The NRRU entry does not require a Interpretive Summary.



- Use Ctrl C (copy) and Ctrl V (paste) to copy/paste the narrative from the Word document into the Technical Abstract block of the 115. The Interpretive Summary is not used when entering a NRRU.
- *Publications contributing to the NRRU Release* should be entered below the NRRU narrative. Drop down one line and enter the heading of *Publications contributing to the NRRU Release as shown above:* (refer to the entry in the red rectangle as shown above).
- Drop down one line and copy/paste the Citations provided by the ARS SY. It is not necessary to include the 115 Log Number with each Citation.
- Click on the **Save** button at the bottom of the screen.
- The 115 can be printed to obtain the hard copy for line management signature(s); saved as a pdf to the hard drive; or e-mailed directly to selected recipients for review.
- Email a copy of the approved 115 to Dr. Kaphammer so that he will have the 115 Log Number to use in assigning the NRRU number.
- The NRRU posted to the web site will have the same number as the 115 for consistency and reference purposes.



- The Journal URL will launch to the NRRU web site so that individuals can subscribe to automatically receive future NRRU postings.
- Once the Reprint URL data is available: the Unit will be notified so the specific link can be added to the 115. This link will be similar to the doi (digital object identifier) links used by journals.
- Entering the 115 will allow the NRRU to become more widely available and accessible.
- The 115 will migrate to the Products & Services link for the Research Unit and the Journal URL will appear to allow subscribing for future updates.
- The Reprint URL will launch to a pdf posting of the full NRRU.