

**Agronomic and phenotypic characterization of Transgenic NUE-12 Rice, the relevant comparator
NERICA-4, and reference cultivar NERICA-8 when grown in Africa.**

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Arcadia Biosciences, Inc.**

Regulatory Field Notebook

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Study Title:	Agronomic and Phenotypic Characterization and Sampling of Event NUE-12 and Non-transgenic Control Rice in Uganda REGULATORY TRIAL FOR NITROGEN USE EFFICIENCY (NUE) TRANSGENIC RICE UNDER CONFINED FIELD TRIA
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Co-Principal Investigator:	Mr. Samson Ojok NARO-NaCRRRI Namulonge, Uganda Email: samsonojok@gmail.com

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2 Using this Field Notebook

This Field Notebook (FNB) is to be used to document events, field activities, and conduct associated with the Production Plan (provided separately) entitled “Agronomic and Phenotypic Characterization and Sampling of Event NUE-12 and Non-transgenic Control Rice in Uganda”.

For the purposes of record keeping, a hard copy of the relevant forms to be populated or data to be collected should be printed and the hard copy used in the field . In this way, direct hand entry is facilitated and once the form or data collection is complete the forms or data sheets are scanned and provided to NBC and AATF as a pdf or presented as an electronic image. The originals then are stored and retained as a facility record in a study file (see section 4.1).

The plant materials used in this confined field trial (CFT) contain traits introduced using modern genetic techniques and are called “genetically modified” (GM) or ‘genetically engineered” (GE). Following the relevant national regulatory process, authorization has been granted to conduct this trial. As such, the measures for handling of seed, plants, harvested materials, and post-harvest monitoring described herein are very specific and are intended to comply with pertinent Terms and Conditions of authorization. Given that this production plan includes regulated transgenic material, the relevant Terms and Conditions of Authorization for this CFT are the governing document should there be any conflict or inconsistency with the instructions that follow.

An electronic copy or image of the relevant authorization shall be made available to AATF by the Principal Investigator (PI). This important document should be maintained by the PI and should be kept in a dedicated and secure ‘CFT Study File’, (see item 11, below).

3 Field Entries, Site locations, and CFT Experimental Design

3.1 Field Entries

The established confined field trial will be strictly limited to these three entries. Seed containing event NUE-12 rice as test substance, NERICA-4 the relevant non-transgenic rice comparator as control substance, and NERICA-8 as a rice check variety as presented in Table 1.

Table 1. Entry Identification, Description, and Type for NUE-12 Production Plan, 2019.

Entry #	Entry ID	Description	Type
1	NUE-12	Transgenic seed containing event NUE-12 in NERICA-4 background	Test Material
2	NERICA-4	Non-transgenic unmodified seed of parental variety NERICA-4	Control Material
3	NERICA-8	Seed of check variety	Local Reference

3.2 Site Locations

This confined field trial is to be established at the following location which resides within the rice-growing area in Uganda. The CFT site code, country, location description, and station location are presented in Table 2.

Table 2. Confined Field Trial Location

CFT Site Code	Country	Description	GPS Coordinates (Lat, Long)
UG	Uganda	NARO-NaCRRRI National Crop Resources Research Institute, Namulonge	0°31'50" N / 32° 37' 39" E

3.3 *Production Plan Field Experimental Design*

For each location, the entries NUE-12, NERICA-4, and NERICA-8 shall be established in 2m x 5m plots using a randomized complete block design (RCBD) with five replicate blocks as shown in Table 3. The total number of designated plots within the CFT will be 15 (3 entries x 5 blocks). A planting list is provided in Table 4 which lists entry, plot number by replicated block (synonymous with the term "Rep").

Table 3. NUE-12 CFT field design: plot designation by entry and within replicated blocks

Entry #	Identity	Replicate Block #				
		1st	2 nd	3 rd	4th	5 th
1	NUE-12	101	201	303	402	501
2	NERICA-4	102	203	301	401	502
3	NERICA-8	103	202	302	403	503

Table 4. Planting List detailing Block Number, Plot Number, and Entry Designation

Block Number	Plot Number	Entry Designation
1	101	NUE-12
1	102	NERICA-4
1	103	NERICA-8
2	201	NUE-12
2	202	NERICA-8
2	203	NERICA-4

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3	301	NERICA-4
3	302	NERICA-8
3	303	NUE-12
4	401	NERICA-4
4	402	NUE-12
4	403	NERICA-8
5	501	NUE-12
5	502	NERICA-4
5	503	NERICA-8

Generate single sided paper hard copies of the relevant forms or data collection sheets prior to their use in the field.

When making notes or data entries, use a blue or black pen and write or print legibly. Do not use pencil or whiteout. If more than three lines are left blank on a page, or are unused for any reason, line through the area, label "not used", initial, and date.

Please record and write information direct and promptly at the time it is generated or observed.

Date and initial entries on the day of entry. Date format is Day/Month/Year (examples: 25/07/2019 or 25/July/2019).

Remember to document units when recording data. Use SI units of measure (i.e. meters, grams, hectares, for data.

If information or data is transcribed, provide the source and location of the original data entry by descriptive prose. Once forms are complete (i.e. with PI/CFT Manager signatures, Section 4.4) scan or otherwise provide NBC and AATF with a pdf or electronic images of the recorded data.

4.3 Data Correction

Changes to entries, if necessary, should be made by drawing one line through the original entry so as not to obscure it, indicate the reason for the change (Common Correction Codes below), then initial and date the entry.

For example: Field length recorded incorrectly

TE PJR 25/May/2019

Field length: ~~53.8m~~ 58.3 meters

Common Correction Codes used to show the reason for a change should be circled, dated and initialed. Common Correction Codes are defined as follows:

CL	= Clarification	NI	= Not Inspected
EE	= Entry Error	RC	= Recalculation
E	= Equipment Malfunction	RE	= Reevaluation
LE	= Late Entry	SP	= Spelling Error
M	= Missing Entry	TE	= Transcription Error
M	= Mislocation of Entry	W	= Write Over

Any form in this notebook may be copied and used if correctly reference. For example: if 3 copies of page 24 are needed. When completed, the forms used should follow page 24 and be referenced as 24a and 24b when completed.

Do not write on the back side of any of these pages. If notes need to be made, place them in the chronological log.

4.4 Acknowledgement Signature by PI or CFT Manager

The Principal Investigator (or delegate CFT Manager) should review each page and initial the bottom of each page when the page is complete, and the information recorded is deemed correct and to the best of his/her knowledge.

4.5 CFT Study Folder

A CFT Study Folder is to be created and managed by the CFT Manager to place into secure storage important documents, authorization, completed FNB pages, and other important documents. Doing so will simplify record retention into one designate file and facilitate document retrieval as these are important study records.

Any additional information not requested or captured in this notebook (example- soil analysis reports, Copies of Authorization, Agency Inspections, etc.) should be kept in a dedicated 'Study File'.

4.6 A CFT Chronological Log

A chronological log section is included in the FNB to write down significant observations, extreme weather events, visits, inspections, or observations that fall outside of what's requested. These entries are to be initialed and dates and should be entered chronologically

4.7 Data Transfer upon completion

At the conclusion of the field phase of the Production Plan, hard paper copies of the documents and content of the CFT Study File will be requested by the NBC and AATF .

5 Compliance Requirements for Genetically Engineered (GE) plants

All persons who are authorized to handling GE seed or GE plant materials for this CFT must sign below ("CFT Personnel Training"), indicating that they understand the regulated nature of the trial, the Terms and Conditions of Authorization associated with this specific confined field trial (CFT), and relevant design protocols (examples, isolation distances, site access, etc.) to ensure material containment, genetic isolation, and compliance reporting requirements.

6 General Biosafety Precautions

These are broadly applicable prescriptive measures that detail methods of handling, storage, cultivation, and CFT conduct to be employed to prevent inadvertent and unauthorized release of GM seed, unauthorized use as food and feed, and preventing persistence in the environment.

6.1 *Regulated GE seed Receipt and Storage*

Movement and release of all rice seed for this confined field trial will be done only under approved authorization. Prior to receipt of GE seed, the CFT Manager is to receive relevant and applicable authorizations. These are important facility documents to be stored in a CFT STUDY file. Once available, a PDF or document images needs to be provided to NBC and AATF

GE Rice seed received shall be documented and stored securely prior to use.

A chain-of-custody / material transfer form, if included in the seed shipments, shouldaid in documenting receipt. The seed received will be stored in a secure facility with a posted sign indicating "Authorized Access Only" and that genetically modified materials arein storage.

6.2 *Confined Field Trial Planting*

In the establishment of these trials, only materials approved are to be used and only for their intended purpose at authorized locations.

All planting will be done by hand; no mechanical equipment will be used. All tools or equipment used at planting need to be inspected after cleaning to reduce the potential for off-site movement of seed. Seed packets will not be reused. Other packaging containers used for transfer will be inspected and if found to be free of seed they can be released for general use. Container inspection required documentation in the CFT FNB log section of this notebook.

6.3 *Plot Identification and Monitoring*

Each plot will be uniquely and appropriately identified. Each designated plot will be identified throughout the season with two durable stakes (wood, plastic, or metal). Written upon the stakes will be the correct plot number (i.e. "101" and entry number (ie. "1"). The entry number shall be circled to distinguish it from the plot number. Plot stakes are to be placed at the beginning (front and center of plot) and end (back and center) of the plot.

During the entire field season, the stakes shall be maintained so that they serve their purpose in that they are present and legible. If needed, additional stakes can be made to replace broken, weathered, missing, or illegible stakes.

6.4 *Reproductive and Genetic Isolation*

All rice plants included within the CFT site will be separated from any other rice plants (not part of the relevant authorization) by an isolation distance found in the terms and conditions of authorization. The isolation distance must be kept free from rice plants. The rice plants in the trial will be allowed to open pollinate, but gene flow will be controlled by the reproductive isolation distance noted, and by the small size of the trial.

6.5 *Sampling and Harvest Operations*

All plots with the trial will be hand harvested; no mechanical equipment will be used. This will reduce the potential for off-site movement of seed on equipment.

Storage procedures for plant samples and harvested materials will be the same as those described above. Surplus and unused plant material remaining in the field after harvest need to be devitalized. Plants are typically uprooted and allowed to desiccate and the area cultivated to incorporate crop residues into the soil.

6.6 *Post-Harvest Site Monitoring*

The trial site will be monitored every 28-35 days for volunteer rice plants for 12 months after harvest of the field trial. Replanting to non-regulated rice during the monitoring period is not allowed, but planting to a morphologically distinct crop that would allow for monitoring, may be acceptable if this is allowed by the specific terms and conditions of authorization.

All volunteer rice plants will be destroyed prior to flowering by hand weeding, mechanical cultivation or by herbicide treatment. Site irrigation to promote volunteer rice germination can be used to increase the effectiveness of volunteer plant management.

6.7 *Corrective Action in the event of accidental release*

If an accidental or inadvertent release of the plant material(s) under regulation is suspected, the incident and situation should be stabilized and all actions taken as necessary to prevent material entering channels of commerce, food, or feed.

CFT Managers are to contact and inform the Principal Investigator and AATF directly by phone. A reasonable expectation should include making contact within an hour of discovery if at all possible.

7 CFT Authorized Personnel Training on the handling and use of GE materials.

All individuals sharing responsibility for this trial must understand and acknowledge the specific requirements of this regulated trial, and have training to that effect (see "CFT Personnel Training" Form below).

This does not include supervised temporary laborers used for specific tasks such as planting and harvesting. Those individuals will receive task-specific training, work under direct supervision, and any on site training to be documented (see section 7.2, "On Site Personnel and Biosafety Awareness Training")

A complete list of authorized personnel (see Section 7.1) needs to be completed by the Principal Investigator (or delegated to CFT Manager). This document should be included in the CFT Study File.

7.1 CFT Personnel Training Form

I have read and understand Sections 4, 5, and 6 above, describing requirements for working with GE seed in this regulated confined field trial; I have also received training on specific requirements for the management and confinement of this regulated GM field trial, as described below.			
Name (print):	Signature:	Initials:	Date:
Brief description of orientation, instruction, or training that was done:			
Trainer (Print Name):	Trainer (signature):	Date of training:	
Reviewed and Approved by (PI or CFT Manager):			
Signature:		Date (day/month/year):	

*On completion of above form, participants may use their initials to record data in the Field Notebook or on forms. The completed form needs to be retained by the CFT Manager in the CFT Study File.

7.2 On Site Personnel and Biosafety Awareness Training

For supervised temporary, seasonal, or part time personnel and laborers used for specific tasks such as planting and harvesting, individuals will receive task-specific training and work under direct supervision by the CFT Manager, and any onsite training completed is to be recorded using the Training Record Documentation Form below and, when completed, retained in Study File.

On Site Personnel and Biosafety Awareness Training Form			
By my signature below, I understand the requirements for working with Gm seed and plant materials in this Confined Field Trial; I have also received task specific training on-site on confinement and containment of these regulated GM field trial.			
Name (print):	Signature:	Initials:	Date:
Trainer (Print Name):	Trainer (signature):	Date of training:	
Brief description of training topics (include syllabus and presentation materials in study file):			
Reviewed and Approved by (PI or CFT Manager):			
Signature:		Date (day/month/year):	

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The completed form needs to be retained by the CFT Manager in the CFT Study File.

7.3 *List of Authorized Personnel*

Principal Investigator

Name (Print): _____ Date: / /

Signature: _____ Initials: _____

Confined Field Trial Manager

Name (Print): _____ Date: / /

Signature: _____ Initials: _____

Associates and Technicians

Name (Print): _____ Date: / /

Signature: _____ Initials: _____

Name (Print): _____ Date: / /

Signature: _____ Initials: _____

Name (Print): _____ Date: / /

Signature: _____ Initials: _____

Name (Print): _____ Date: / /

Signature: _____ Initials: _____

Reviewed and Approved by (PI or CFT Manager):

Signature: _____ Date (day/month/year): _____

8 Regulated Seed Receipt and Inventory Storage

A record of receipt and storage of seed to be used for planting and CFT establishment will be completed once seed is received (see form that follows).

If the plants or plant materials are shipped, they must be shipped in such a way that the viable plant material is unlikely to be disseminated while in transit and must be maintained and stored at the destination facility in such a way that there is no unauthorized use or release into the environment.

The regulated GE seed must be packaged, labeled, and stored in such a way that they are not inadvertently mixed with non-regulated plant materials of any species which are not part of the CFT Study. The identity of all material is known and adequately labelled while it is in use.

When a shipment of regulated plant material is received, the following actions should be undertaken immediately by the Intended Recipient.

1. Verify that the shipment received includes a **Material Transfer Form or Chain of Custody Documentation signed by the Sender**. If a Material Transfer Form or Chain of Custody Document is absent from the shipment, or the documentation unsigned, the Recipient must contact the Sender and request copies be transmitted immediately via email, fax, or otherwise.
2. The materials received must be placed into secure storage and no further actions taken until such time the appropriate documentation is received.
3. When the appropriate and signed Material Transfer Form or Chain of Custody Documents are received, the CFT Manager (or authorized delegate) can proceed with a confirmation of transfer, containment, and inventory received. See "Regulated Plant Seed Inventory upon Receipt Form" below.

Once complete, The CFT Manager must scan or copy the completed forms and send, via e-mail to NBC and AATF and to the shipper to confirm receipt. Retain any other documents received with the seed shipment (e.g. Phytosanitary Certificates, Import Permits, etc.) and scan/email to NBC and AATF. Store the documentation in the CFT Study File for record keeping purposes.

Seed Storage: If interim seed storage is necessary, seed for this trial must be stored in a secure location available to authorized personnel only. The storage area must sign-posted with the information 'GE Plant Material – Not for Use in Food or Feed', or equivalent verbiage. The GM material must be kept separate from other rice not part of this release and other non-GM materials being stored or maintained in the same facility or area.

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8.1 *Regulated Plant Seed Inventory upon Receipt Form*

Note: Receipt of seed used to establish border rows can be entered in the chronological log.

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Sent by Name (print):		Received by Name (print):	
Shipment Date: / /		Signature: Date: / /	
Name:		Name:	
Title/Organization:		Title/Organization:	
Address:		Address:	
Phone: Email:		Phone: Email:	
CFT Authorization #:		Storage Location:	
Entry ID	Container description (e.g. seed packets)	Quantity (Weight /count)	Condition upon receipt: Was regulated seed packaging such that there was no obvious breach in containment or loss of seed? (Yes/ No ¹) Circle Response
			Yes No Initials: Date: / /
			Yes No Initials: Date: / /
			Yes No Initials: Date: / /
			Yes No Initials: Date: / /
			Yes No Initials: Date: / /
¹ If "No": please provide details to clarify here and inform Principal Investigator.			
Prepared by/Signature:		Date (day/month/year): / /	
Checked for Accuracy and Completeness by CFT Manager Signature:		Date (day/month/year): / /	

8.2 *Transgenic Seed Log*

Seed allocated for use in planting the confined field trial. Record either seed count or gram weight.

Block #	Plot #	Entry ID	Amount of Seed Count/gm wt.	Initials	Date:
1	101	NUE-12			
1	102	NERICA-4			
1	103	NERICA-8			
2	201	NUE-12			
2	202	NERICA-8			
2	203	NERICA-4			
3	301	NERICA-4			
3	302	NERICA-8			
3	303	NUE-12			
4	401	NERICA-4			
4	402	NUE-12			
4	403	NERICA-8			
5	501	NUE-12			
5	502	NERICA-4			
5	503	NERICA-8			

Checked for Accuracy and Completeness by CFT Manager

Signature:

Date (day/month/year): / /

[illegible]

Checked for Accuracy and Completeness by CFT Manager

Signature:

Date (day/month/year): / /

9 Location Verification

Please provide the following relevant information in regards to CFT site location.

Briefly provide driving directions from the nearest town or village:

Site Code:	Authorization #:
Institute	GPS of Confined Field Site Location
Contact information	Lat:
Principal Investigator:	Long:
Email:	Entry made by (Initials):

Cell phone:	Date(day/month/year): / /
CFT Manager:	
Site location Verification: Is the location correct for the CFT Trial as described in the Authorization? YES ☐ NO ☐ Initials: Date (day/month/year) _/_	
If "No": Please describe below: 	
Please note: It is required that the regulated material be planted in an area defined in the relevant authorization. If on site conditions dictate that the physical release be moved outside the pre-approved and authorized site, call Principal Investigator to discuss.	
Signature:	Checked for Accuracy and Completeness by CFT Manager Date (day/month/year):

9.1 *Confined Field Trial Site Location Map*

Please insert (or draw, paste, or provide) a local map including CFT site area, extending beyond 100 meters from the perimeter of outside border rows and identify all other rice planned or planted within the vicinity of the CFT Site to include commercial or household plantings outside of the required isolation distance. Also kindly label cities, towns, or villages and major roads to the location:

This section intentionally left blank.

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Confined Field Trial Location Map

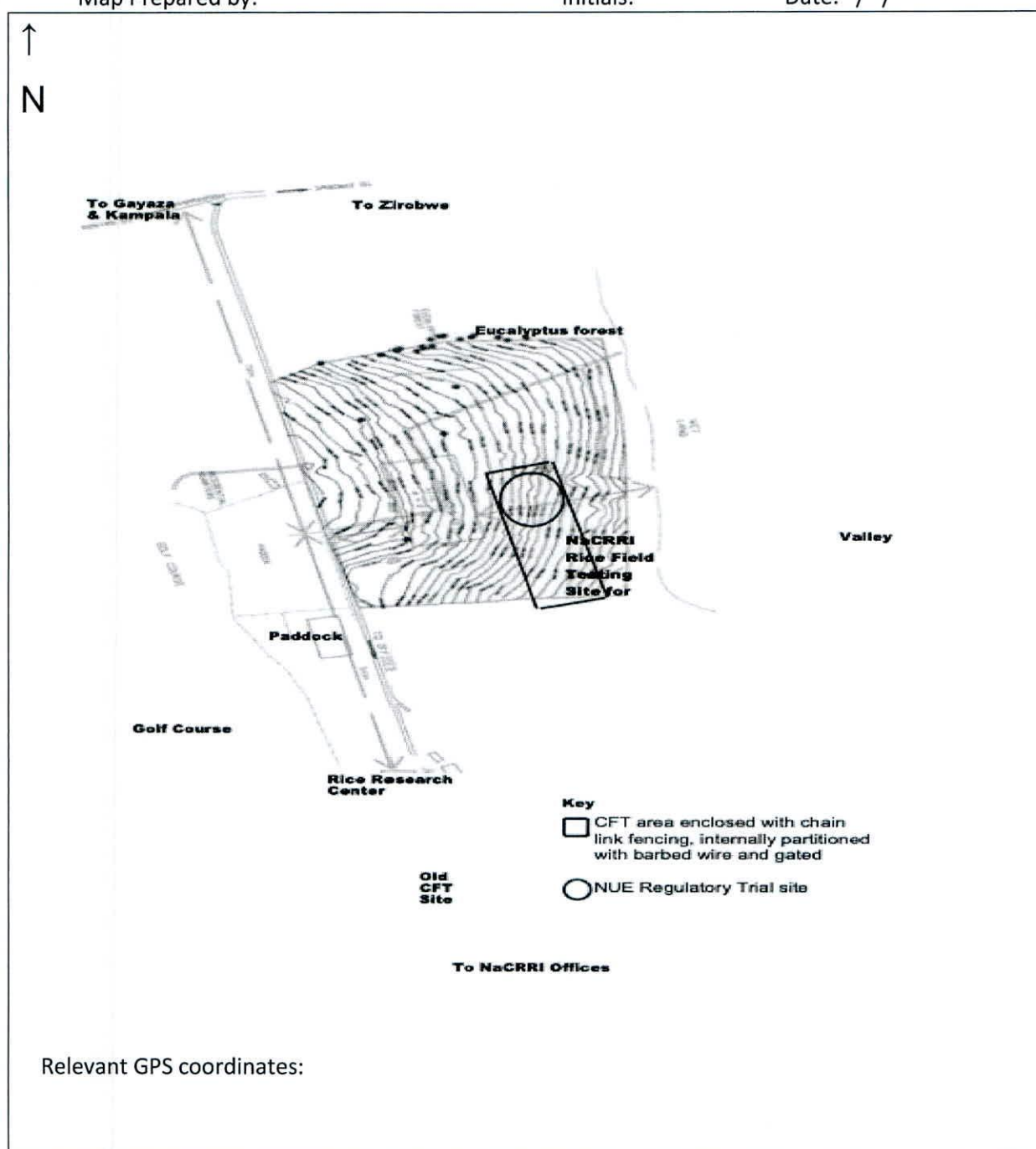
Site Code:

Authorization #:

Map Prepared by:

Initials:

Date: / /



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Checked for Accuracy and Completeness by CFT Manager

Signature:

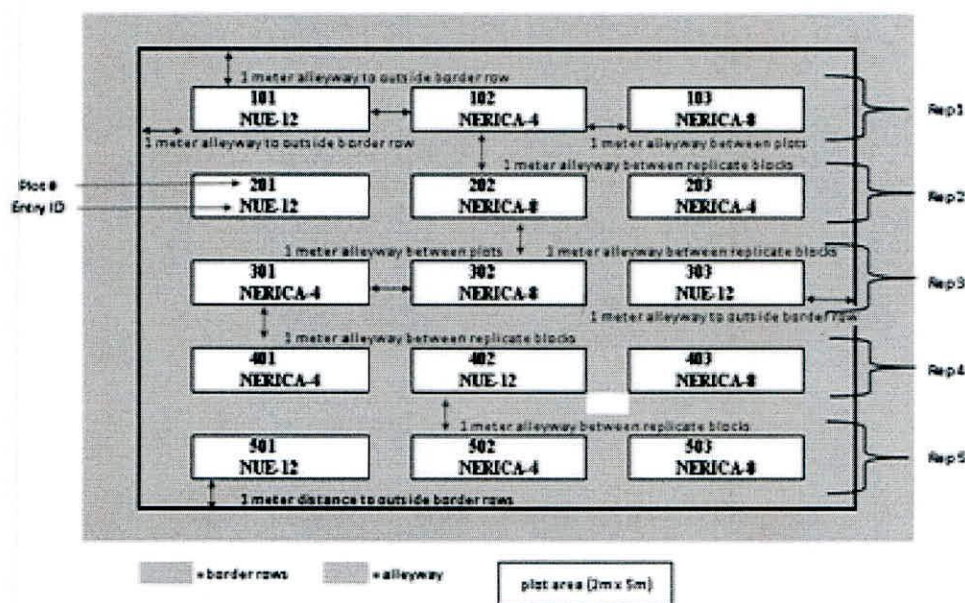
Date (day/month/year):

Date: / /

CFT Plot Map

Site Code:

Authorization:



Checked for Accuracy and Completeness by CFT Manager

Signature:

Date (day/month/year):

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Planning prior to planting would include marking the location and configuration of each block followed by plot location and configuration within each block. The CFT field design is as follows:

Entry Code for planting plan

Entry	Rep1	Rep2	Rep3	Rep4	Rep5		Block 1	101	102	103
NUE-12	101	210	303	402	501		Block 2	201	202	203
NUE-4	101	203	301	401	502		Block 3	301	302	303
NERICA_8	103	202	302	403	503		Block 4	401	402	403
							Block 5	501	502	503

10 CFT Test Site Information

10.1 Site Field History

If the information asked for is transcribed from an outside source document, place copies of relevant pages into CFT Study File and please describe how the information was obtained.

Prior Crop or Ground Cover	Year or Season	Planting Date	Harvest Date

Information entered by: Initials: _____ Date: _____

Source of information, if transcribed from other source (describe here): _____

Checked for Accuracy and Completeness by CFT Manager

Signature:

Date (day/month/year):

10.2 CFT Soil Physical and Chemical Properties

Relevant soil analysis results for the location are needed. Nitrogen levels in the soil need to be measured to establish the base level of nitrogen already present. For the crop season and within the CFT Site a single nutrient management regime is required where the amount of nitrogen added to the soil as a **basal starter rate is to be no more than 60 kilograms of total nitrogen per hectare**.

For example, if the base level of nitrogen already present in the soil is measured at 5 kilograms of nitrogen, then an additional 55 kilograms of nitrogen will be added and incorporated into the soil. If needed, soil amendments of additional macro-nutrients (e.g. phosphorus, potassium) or micro-nutrients (e.g. copper, iron) can be made based on local practices or to supply these elements based on specific rice mineral nutrition needs.

10.2.1 Soil Test Results

If the values entered below are transcribed from soil analysis report or a soil survey map, please place a copy of the soil analysis into the CFT Study File.

Soil Series Name:

Soil Textural Class:

Soil Chemical Properties

Soil pH:

Organic carbon (%):

Organic Matter (%):

Cation Exchange Capacity (meq/100gm):

Total soil Nitrogen (kg/ha):

Form of Nitrogen: NH₄-N (%)

NO₃ (%):

Available/exchangeable P (mg/kg)
Available/exchangeable K (mg/kg)
Available/exchangeable Ca (mg/kg)

Entered by: Initials: Date:

Checked for Accuracy and Completeness by CFT Manager

Signature: Date:

11 Rice Production Management Practices

In this section, document cultivation, fertilizers, and all pesticides used, irrigation, and all agronomic practices.

11.1 *Land Preparation, Cultivation, and Plot Maintenance*

Date: _____ Operation _____

Performed By _____

Data Entered By _____

Brief Description:

Date: _____ Operation _____

Performed By _____

Data Entered By _____

Brief Description:

[illegible]

--

11.4 *Maintenance Chemistry*

Products Used and Target Pest

(Product Name/active ingredient)	Rate (kg a.i./ha)	Pest/Target/Purpose	Application Date	Initials

Checked for Accuracy and Completeness by CFT Manager

Signature:

Date (day/month/year):

12 Pre-plant activity

12.1 *CFT Design, block and plot designation*

Planning prior to planting in the field will include marking the location and configuration of each block followed by plot location and the physical configuration with in each block. The CFT field design is represented in Section 3.4.

Please note that changes in plot configuration (2x5m), plot or block order, and plot number schemes are prohibited. Any planned change to the CFT design must be communicated by the CFT Manager to the Principal Investigator for approval prior to planting.

12.2 CFT Preplant Checklist

CFT PLANTING AND TRIAL ESTABLISHMENT PREPARATORY CHECKLIST		
Site Code:	Authorization #:	
Please check your appropriate response (Yes or No) in answering the following questions.	YES	NO¹
Will the movement and planting of the transgenic rice seed for this trial at your location to be done under a current and relevant CFT Authorization?		
Is there a CFT Plot map or planting plan that corresponds to the entry ID and Plot Designation?		
Are seed envelopes examined to ensure that the seed in envelopes are appropriately labeled (ie. NUE-12, NERICA-4, NERICA-8) and correctly allotted to designated plots?		
Is the total area of the planned CFT field site larger than the total area approved in the authorization?		
¹ If 'No', prior to proceeding, call Principal Investigator and ask for clarification and guidance		
Checklist completed by (Initials):	Date: / /	
Checked for Accuracy and Completeness by CFT Manager Signature:	Date (day/month/year):	

Any equipment used during planting (i.e. dibbles, shovels, hoes and rakes) must be cleared of any plant material prior to offsite movement. Document any cleaning procedures used in FNB chronological log.

12.3 Plot Designation and Seed Packet Details

Each plot within the CFT is to be uniquely identified by a plot number (i.e. 101,102,..) and the designated entry to be planted. In preparing seed packets be mindful of the information presented in Table 8

Table 8. List of Seed Packets to prepared for NUE-12 CFT Regulatory Trial designation by block and plot number.

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Seed Quantities and Packaging: Please quantify the amount of seed used by count or by weight (g).

Block Number	Plot Number	Entry Designation	Seed Quantity	Seed Packaged by (Initials):	Seed Packaged by: Date: / /
1	101	NUE-12			
1	102	NERICA-4			
1	103	NERICA-8			
2	201	NUE-12			
2	202	NERICA-8			
2	203	NERICA-4			
3	301	NERICA-4			
3	302	NERICA-8			
3	303	NUE-12			
4	401	NERICA-4			
4	402	NUE-12			
4	403	NERICA-8			
5	501	NUE-12			
5	502	NERICA-4			
5	503	NERICA-8			

Checked for Accuracy and Completeness by CFT Manager

Signature:

Date (day/month/year):

13 Planting Details

Please record the following on the day of planting:

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CFT Site Code:

Authorization number:

Planting date of experimental plots:

Approximate planting depth (cm):

Soil conditions at planting (i.e dry, moist, etc.)

Entered by (Initials):

Date entered:

Please answer the following questions:

Before planting, were plots uniquely identified by plot number? ☐ YES ☐ NO

If "No", explain _____

Were block and plot designations followed? ☐ YES ☐ NO

If "NO", explain _____

Any problems or delays encountered during planting? ☐ YES ☐ NO

If "YES", explain _____

Any field tools and equipment used during planting? ☐ YES ☐ NO

If yes, describe clearing or cleaning procedures used in the chronological log of the FNB.

Checked for Accuracy and Completeness by CFT Manager

Signature:

Date (day/month/year):

14 Plant Emergence and Seed Germination

Notes at Emergence Date: Initials: _____

Planting Date: _____ Number of Days after Planting: _____

Plant Growth Stage (BBCH¹ Score): _____

Plant emergence normal? YES ☐ NO ☐

If "No", describe: _____

14.1 Seed Germination Counts

Seed germination counts shall be taken on a plot by plot basis 10-14 days after planting and documented here. For each plot, **a single row will be impartially chosen**. Within the selected row count the number of hills established and the total number of emerged rice seedling within same row.

¹ BBCH Numeric codes (00-99) used to track rice phenology and development. BBCH description found in Rice Monitoring Form provided separately.

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Agronomic and Phenotypic Characterization of Event NUE-12 and Non-Transgenic Control Rice Grown in Africa, Ghana, 2019				
Trial ID:		Seed Germination Counts		
Site Code:		Country:		
Authorization #:		Principal Investigator:		
		CFT Trial Manager:		
Data entered by: Initials:		Date:		Select one row per plot, Count and record the number of hills per selected row.
Planting Date:				
Rating Date (day/month/year)		/ /		/ /
Entry	Entry		Count	Total number of emerged seedlings in selected row Count
No.	Name	Plot		
1	NUE-12	101		
2	NERICA-4	102		
3	NERICA-8	103		
1	NUE-12	201		
3	NERICA-8	202		
2	NERICA-4	203		
2	NERICA-4	301		
3	NERICA-8	302		
1	NUE-12	303		
2	NERICA-4	401		
1	NUE-12	402		
3	NERICA-8	403		
1	NUE-12	501		
2	NERICA-4	502		
3	NERICA-8	503		

Checked for Accuracy and Completeness by CFT Manager

Signature:

Date (day/month/year):

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15 Plant Thinning and Plant Stand Counts

After seed germination counts are made, planted hills within each plot are to be hand-thinned to a single vigorous plant per hill. After thinning, total area per each plot should be approximately ten square meters (2 m width, 5 m length) with a target stand of 250 plants per plot. After hand thinning, the number of plants per plot are to be counted and documented using the form below:

Agronomic and Phenotypic Characterization of Event NUE-12 and Non-Transgenic Control Rice Grown in Africa, Ghana, 2019				
Trial ID:		Plant Stand Count and Growth Stage After Thinning		
Site Code:		Country:		
Authorization #:		Principal Investigator:		
		CFT Trial Manager:		
Data entered by: Initials:		Date:		Number of plants per plot after hand thinning
Planting Date:				
Rating Date (day/month/year)		/ /		BBCH Growth Stage
Entry	Entry		Count	00-99
No.	Name	Plot		
1	NUE-12	101		
2	NERICA-4	102		
3	NERICA-8	103		
1	NUE-12	201		
3	NERICA-8	202		
2	NERICA-4	203		
2	NERICA-4	301		
3	NERICA-8	302		
1	NUE-12	303		
2	NERICA-4	401		
1	NUE-12	402		
3	NERICA-8	403		
1	NUE-12	501		
2	NERICA-4	502		

3	NERICA-8	503		
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Checked for Accuracy and Completeness by CFT Manager

Signature:

Date (day/month/year):

16 CFT Establishment Report

After the completion of planting at the site, the PI (or delegated Trial Manager) enters the information requested in the Trial Establishment Report to confirm planting and fidelity to the proposed field study design by direct field inspection after planting and plot thinning. At that time, all significant changes to the proposed field design (as depicted in section 9.1.2- CFT Plot Map) shall be documented and communicated to NBC and AATF .

Before starting in the field, the PI or CFT Manager should reference study records and the proposed field study design in the production plan, become familiar with the on-site field layout on site, the pattern of planting, and locate the designated blocks and plots within each block. In confirmation, the PI (or delegated CFT Manager) enters the CFT field site and evaluates on a plot by plot basis.

Using maps completed for Section 5 and 9, walk through each block to confirm plot order, plot identification, and the sufficiency of stand as encountered and witnessed in the field. The authorization number, date of observation, and initials of the persons involved should be written clearly on each page.

The following should be verified by direct observation in the field:

16.1 Plot Identification and Configuration

Each plot should be identifiable with front and back monumentation stakes with plot number and entry #. The agreed upon plot configuration for this trial consist of 10 parallel rows- each row with 25 plants each. The agreed upon field design for this trial given the three entries should reflect a random complete block design with five replicate blocks.

The PI (or delegated Trial Manager) checks the fidelity of block and plot ID/number as observed in the field (hard copy) to the plot order used in the proposed field study design. Any significant changes to the field design or plot order to be documented in the Trial Establishment Report.

16.2 Confirmation of CFT Location and CFT Field Plot Maps

A final field plot map is prepared that provides dimensions of trial site, orientation of map (direction North), and GPS coordinates of four corners of the trial site (including borders). Map may be handwritten or computer generated, but must be clear enough to photocopy. Alternately, a statement confirming the accuracy of the maps completed for Section 5 and 9 can be made. For all maps- they shall be legible and precise, generated by computer software or drawn using local maps using crisp line drawings and block letters.

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16.3 *The CFT Establishment Report Form*

CFT ESTABLISHMENT REPORT FORM

Instructions: The PI (or delegate CFT Manager) provides the information requested or responds to the questions below.

CFT Site Code:

Authorization #:

Planting Date:

Were the instructions provided in Section 7: NUE-12 CFT field design followed as witnessed in the field with regards to plot dimensions, identification, and block configuration?

YES ☐ NO ☐ Initial: Date:

If "No", please explain:

Any significant changes to design or configuration as seen in the field?

YES ☐ NO ☐ Initial: Date:

If "Yes", please explain:

Were there any significant changes to the maps completed in Section 5 and 9 of the FNB seen after field inspection?

YES ☐ NO ☐ Initial: Date: _____

If "Yes" please submit your final location and field plot maps.

If "No", please confirm here that both maps are true and accurate documents.

I confirm below that the submitted maps are true and accurate to the best of my knowledge:

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PI / CFT Trial Manager	Signature:	Date:
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