United States Department of Agriculture
National Institute of Food and Agriculture

Manual for Participants

Participatory Breeding and Testing Networks: A Maize Based Case Study for Organic Systems

OREI Project Number 2017-02413

Introduction to the Guide

This is a guide for members of a participatory network that is designed to help researchers, farmers, educators and industry members to work together to develop new varieties for organic markets. While many aspects of the project apply to organic breeding and testing in general, our testing network will focus on corn as a sort of case study, to help us develop protocols to efficiently identify varieties that perform well on organic farms and have nutritional and quality traits desired by producers, buyers, and consumers. The guide has separate sections describing different ways to participate and includes appendices that contain datasheets and sharing agreements.

Contents

Educational Network

Goals

The purpose of the educational network is to support profitable partnerships to develop valuable crops and successful organic markets. We hope to foster a close collaboration between farmers, researchers, buyers, and consumers and translate our research activities in a clear and timely manner.

Activities

Participants in the network's educational exchange will engage in regional and/or online workshops, and contribute input through discussion, and/or through the completion of surveys or questionnaires. Network and research activities will help us discover how on- and off-farm factors currently influence seed supply and determine how changes in these factors can improve the success of participatory breeding efforts and support profitable partnerships and organic markets. Research conducted in the testing network and replicated trials explore on-farm/agronomic factors that include seed resources, weather, cultural practices, pest and disease pressure, soil health, harvest and storage. Activities will consider important off-farm factors that include intellectual property protections, sharing agreements, the organizational structure of the value chain, and market relations influencing breeding efforts for organic markets.

Outcomes

Participants in the educational network will have access to summary reports that contain publically available data from the testing network and replicated trials, all project materials (presentations and meeting notes) from network meetings, as well as access to all educational materials produced by the group.

Timing and Administration

Participants in the network should complete the network agreement contained in Appendix A3b. Network meetings will typically include winter interactions through conference calls or face-to-face visits, summer field days and or conferences. Individuals can engage based on interest and availability. Activities will be facilitated by project coordinator Claire Luby (contact info).

On-Farm Testing Network

Goals

On-farm strip trials will be used to gather information about corn varieties of interest that have been identified by participating breeders based on their agronomic performance and quality traits, anticipated market use (baking, brewing, livestock etc.), but have not yet been tested under "real world" growing conditions. The information from the testing network reported back to the breeders will determine the future market potential of the tested corn varieties and will inform further breeding efforts.

Activities

Strip trials

Grain yield and quality alone do not provide us with sufficient information about the various strategies cultivars use to cope with diverse environments or how crop cultivars respond during the growing season to specific farming practices as well as biotic (pests, diseases, competition against weeds and "neighbors", etc.) and abiotic (cold, hot, dry, wet growing conditions, lack of nutrients, etc.) stresses. Gaining a deeper understanding of the cultivar's potential to respond to inputs and stresses is the first step to improving efficiently the crop's productivity within complex organic farming systems. Farmers and research coordinators participating in the on-farm testing network will phenotype cultivars in their strip trial for multiple plant characteristics. Methods are more fully described in Appendix 2.

Cultivar supply and selection

Farmers will select entries from a list of cultivars available for the following growing season. Information about the management practices used for their production, cultivar maturity, quality, and agronomic characteristics will typically be provided by mid-January of each year of the project. Table 1 provides a tentative list of the 2018 entries. Final details on seed availability will be completed by early April.

Each year we will ask participants to include a core set of common varieties. This will allow us to understand cultivar ("genotype") by environment (GXE) interactions. The core set will be tailored for areas based on cultivar maturity, cultivar availability, and farmer interest. In 2018, participants in Illinois and Indiana will plant a set of four cultivars plus two control cultivars. In Wisconsin, Iowa, and New York, farmers will have the option to grow seven different cultivars plus a control. In future years, farmers will be able to select additional cultivars based on their interests and seed availability.

Strip trial planning and design

During early winter, farmers will meet with research coordinators either virtually or face-to-face to develop a plan of action for each farm. Generally plans will be derived by meetings between Martin Bohn, William Davison and farmers in Illinois and Indiana, and by meetings between Walter Goldstein and farmers in Wisconsin, Iowa and New York. During these meetings, we will select a field rotating into the corn phase of the rotation in spring. A suitable 0.25 to 5 acres within that field will be identified. Ideally, that area will not have severe problems with drainage or weed pressure, and have low variability in topography and soil type.

Table 1. Cultivars offered for 2018.

Cultivar	Relative maturity [days]	Characteristics	Company
F34.A22	114	yellow orange, hard kernel high yield, food grade	MC
H69.A22	113	yellow orange, hard kernel food grade	MC
P31.A22	112	yellow orange, hard kernel high yield food grade	MC
17.2B24	110	high methionine, soft kernelled, N efficient, good yield.	FOS
NG10.S7	108	high methionine, soft kernelled, N efficient, good yield.	FOS
461.2B24	106	high methionine, soft kernelled, N efficient, good yield.	FOS
FOS8507	103	normal hybrid, very high yield potential	FOS
17.461	104	high methionine, soft kernelled, N efficient, good yield.	FOS
S7.461	103	enhanced methionine, soft kernelled, N efficient, high yield	FOS
15.232	96	high methionine, soft kernelled, high carotene, N efficient, fair yield.	FOS
M9.232	92	high methionine, soft and hard kernelled, N efficient, fair yield.	FOS

Information provided by Walter Goldstein, Martin Bohn, and William Davison, in conjunction with collaborating seed producers and farmers.

Our basic trial design includes strips 4 rows wide and 100 feet long per cultivar (Figure 1). This permits us to evaluate each cultivar using the center 2 rows where the influence of neighboring cultivars is minimized. If all entries in a trial are be of similar height, a 2 row design can be used if strips are planted at least 300 feet in length. Farmers will only be able to plant significantly larger areas of any cultivar if sufficient seed is available.

Individual farmers will finalize the design of their strip trial when they meet with research coordinators. The example below illustrates what a strip trial may look like. The contents of farm action plans, which will vary from farm to farm as a result of seed availability, climatic conditions, interests and infrastructure of the farmer, and perceived opportunities, will be documented using forms available in the strip trial planting guide in Appendix 1 or the associated online forms.

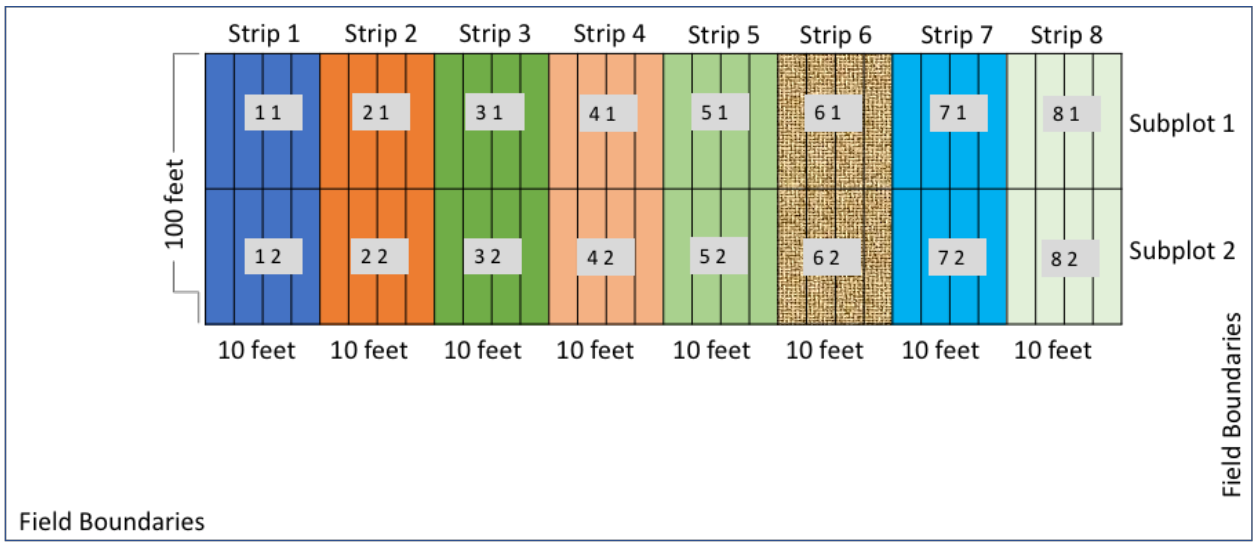

Figure 1. General 4-row 100 feet strip trial design. Numbers in gray boxes indicate codes for soil samples obtained from each strip. One composite sample of two subsamples would be taken from within each rectangle (eg: from Strip one 1-subplot 1). See Appendix 1 for more detail.

Data collection, data sharing, and time estimates

An overview of sampling and data collection includes pre-season, within-season, and harvest activities that are summarized in Table 2. Detailed information and data collection sheets are provided as appendices and online.

We estimate that plot layout, which includes flagging and measuring plots, and soil sampling, should take approximately 5 hours. This will need to happen in early spring before planting begins. Phenotyping occurs at different times during the growing season. To ensure timely collection, the Project Coordinator will be in constant contact with participating farmers and sending reminders. The cumulative time needed for phenotyping should not exceed 5-6 hours of work; time estimates for each trait are detailed in Table 2.

Table 2. Summary of data to be collected from each on-farm strip trial.

Data type	Time needed	Typical date collected	Who does
Field history			
Rotation	2-hr	During farm plan development	
Fertilization		During farm plan development	
Field operations			
Planting	3-hr	In season	Farmer and research coordinators
Cultivation	1-hr	In season	Farmer
Amendments		In season	Farmer
Equipment		In season	Farmer
Plot layout and Soil Sampling			
Test strip composites	5-hr	March-May	Farmer in collaboration with research coordinators
Phenotyping			
Date to plant emergence *	20 min		Farmer
Date to male flowering (Anthesis) *	20 min		Farmer
Date to female flowering (Silking) *	20 min		Farmer
Plant height	40 min	After flowering before harvest	Farmer
Ear height	40 min	After flowering before harvest	Farmer
Root and stalk lodging *	30 min	Before harvest	Farmer
Weed pressure rating *	20 min		Farmer
Disease rating		After flowering	Farmer
Stand count in 1/1000th of an acre*	1h and 30 min	Before harvest	Farmer
Any other noteworthy observation prior to harvest			Farmer
Yield (Strip weight) *	90 min	At harvest	Farmer in collaboration with research coordinators
Grain moisture *		At harvest	Farmer in collaboration with research coordinators
Test weight *		At harvest	Farmer in collaboration with research coordinators

Traits followed by an asterisk (*) are those for which data is highly desired and of high priority. See the phenotyping guide in Appendix 2.

Field management

Strip trials should ideally be planted within a day or two of the adjacent corn area. Farmers will control weeds and complete any field operations normally applied to corn they produce. The dates of field operations, quantities and sources of materials applied and description of equipment used should be recorded in data sheets available in Appendix A1c or in the online formats. This is the same type of information typically provided in the Field Management Plan used for organic certification. Field management history should be collected before planting, ideally during the planning stage using the appropriate form Appendix A1b or the online form.

Soil sampling

Hopefully farmers can collect samples so these can be taken on a timely basis. If you can't do this let us know. Ideally, samples should be taken before planting after sources of fertility have been applied, but before secondary tillage (cultivation and seed bed preparation) have occurred. Farmers will collect two composite subsamples per strip as identified by the numbers within strips in Figure 1. Subsamples will be composites of two cores taken to a 12-inch depth. If farmers do not have a sampling probe one will be provided along with labeled mailing bags. After air dying samples, farmers will mail them to the University of Illinois using pre-paid mailers. We will use soils to complete standard tests and soil health assays. Results will be shared as soon as possible. Any additional soil sampling during the growing season will be arranged with the farmer and cooperators. More detailed instructions are provided in Appendix A2a and A2b.

Crop phenotyping

After planting, participating farmers and research coordinators will visually track crop growth and development, assess pressure from weeds and pests, and measure a small set of important plant characteristics (see Table 2). Detailed instructions are provided in Appendix A2c. Trainings for rating and summaries of data produced by these efforts will be carried out through the educational network. Also, we will provide standardized forms for trait evaluation.

At harvest, cooperators will work with the farmer to ensure harvest is done in a timely manner. In some places cooperators will come to the farm to evaluate yield using a plot combine to harvest the two center rows of each strip. In some places, the investigators will work with the farmer to harvest strips using farm machinery. Where possible, farmers will be asked to assist with yield estimates by providing a weigh wagon or assisting with the hand harvest of mini-plots. In all cases, grain samples from each strip will be sent to the University of Illinois for grain and processing quality analysis and using pre-paid mailers.

Data sharing

Farmers participating in the strip trials will receive results from soil testing, agronomic performance of cultivars and grain quality evaluations. Soil variables include soil pH, available N, P, K, base cations, soil structural assessment, biologically active soil organic matter and plant growth promoting activity. The agronomic performance data will comprise grain yield, maturity, tolerance to weed pressure, and resistance to diseases and pests. Grain quality assessment includes quantification of % protein, minerals, and starch, tocopherols, phenolics, and amino acids. Results will be expressed as raw data, but also as a percentage relative to a commonly utilized control hybrid for the Central and Northern Corn Belt. Completion of the sharing

agreement will permit participants to determine how they want their information to be labeled. Data summary and sharing will be facilitated by the project coordinator, Claire Luby.

Participant responsibilities

Maintaining good communications, providing needed information and resources, and obtaining and providing seed to the farmer is the responsibility of regional coordinators (Davison and Goldstein). The project will cover the cost for sample mailing and materials needed for data collection and compensate farmers for losses according to the compensation agreement (Appendix 3).

Joint responsibilities include participation in planning, and also possibly in planting, ensuring that resources and personnel are available for phenotyping, harvesting and yield measurements. Sampling agreements will list who plans to complete soil sampling and harvest activities and specify the time window in which activities should occur.

Planting, weed control, and overall maintenance of plots is the responsibility of the farmer. Ideally, weed control will be done with harrowing and inter-row cultivation. The farmer is also responsible for signing and sending back material transfer agreements to the individual collaborators that supply the seed. Agreements are provided in Appendix 3 and online.

Advisory Board and Project Participants

Goal:

Advisory board guides project research and outreach activities and engages in the Educational Network. Their experience in participatory breeding and familiarity with aspects of the organic seed industry will guide us developing resources and educational content that will be of help to the organic sector. Advisory board members will contribute through meetings, on-line survey and discussion and, possibly participation in a writing retreat designed to develop content for eOrganic. Information on eOrganic will help members of the organic sector develop viable business partnerships, understand intellectual property issues, and engage in selection and testing activities on their farms. Contributions would be acknowledged through co-authorship or attribution as appropriate. Advisory board members interested in participating in a maize-based case study will contribute through focus groups and workshops investigating the structures and relationships needed for networks that support the development of successful organic feed and food based products.

Members:

Table 3. Advisory members and contact information

Name	E-mail	Institution
Jim Myers	James.Myers@oregonstate.edu	Oregon State University
Philipp Simon	psimon@wisc.edu	USDA-ARS
Mark Sorrells	mes12@cornell.edu	Cornell University
Bill Tracey	wftracy@wisc.edu	University of Wisconsin Cliff Bar
Claire Luby	cluby@wisc.edu	University of Wisconsin
Michela Colley	micaela@seedalliance.org	Organic Seed Alliance
Julie Dawson	dawson@hort.wisc.edu	University of Wisconsin
Paul Scott	paul.scott@ars.usda.gov	USDA-ARS Ames, IA
Chris Reberg-Horton	chris_reberg-horton@ncsu.edu	North Carolina State University
Ken Dallmier	ken.dallmier@clarksongrain.com	Clarkson Grain
Merle Kramer	merle@midwestorganic.com	Midwest Organic Farmers Cooperative
Craig Adams	craig@greatrivermilling.com	Great River Milling
Sherry Tanumihardjo	sherry@nutrisci.wisc.edu	University of Wisconsin

Appendix 1 Record Keeping Guide and Forms

This section collects field specific information we need. Links to online forms are detailed in the sections below or can be accessed in the project's eOrganic workspace (http://eorganic.info/CASH). Please use the online forms if you can because it would save us time and prevent any transcription errors.

A1a. Strip Trial Plan of Action

This is used for strip trial design and should be completed each year after you have completed your winter planning meeting. Please submit by mid-March. Please click the following link to access the form online: Strip Trail Plan of Action and Field History & Management Records or type in your computer browser: http://bit.ly/2nRKyrM. This form is also easily found through our eOrganic workspace.

Farm Name _____Address_____
Phone _____ E-mail _____ preferred mode of contact _____

Please list cultivars to be planted including those chosen from the core set (table 1). Participants will be able to choose additional cultivars starting in 2019. Please identify additional seeds needed and any deviations from the basic plan in the comments section.

Cultivar list: describes the number, type, and identity of cultivars to be planted on your farm.

Cultivars to be planted	Anticipated date seed is needed	Comments

Plot plan:
Number of rows per cultivar_____ Row length (ft) _____ Row width (in) _____

Anticipated weed control methods: _____

Anticipated harvest methods: _____

A1b. Field History and Management Information

This should be complete before field operations begin if at all possible, but only needs to be completed once for each field you use. It will provide information about the field's history of management and the typical tillage and fertilization practices you have used. Please skim the questions and decide whether it would be easier to provide us with materials you prepare for certification. The same information we are asking about should be covered in your organic system plan and field inputs documentation. This form is also linked to the previous form and available online at Strip Trail Plan of Action and Field History & Management Records or type in your computer browser: http://bit.ly/2nRKyrM. This form is also easily found through our eOrganic workspace.

1. Description of field operations used in the past five years including typical tillage, fertilization, rotation:

_____
_____
_____
_____
_____

2. Summary of last five year's cultural practices applied on the area to be studied including dates and rates applied:

_____
_____
_____
_____
_____

3. Summary of practices anticipated including dates, form, and rates of any pre-planting tillage and fertilization practices:

_____
_____
_____
_____
_____

4. Summarize protocol for planting the plots including description of equipment to be used, projected date of planting, row spacing, plant population density, and cultural practices:

_____
_____
_____
_____
_____

5. Describe the area to be used in terms of any known problems including weed pressure, water logging, and soil fertility issues:

_____
_____
_____
_____
_____

6. Outline plans for grain sampling and yield measurements. Indicate whether you anticipate needing help with any or all aspects of this:

_____
_____
_____
_____
_____

A1c. Strip Trial Management Record Sheet

This form records field inputs and operations used during the strip trial. The form is also available online at Management Record Sheet or type the following URL in your computer browser: http://bit.ly/2nRuOVF. This form is also easily found through our eOrganic workspace.

Having the form available online should make this record keeping easy for you and you can do in the field with the help of a smartphone. Please submit paper records or online form by the end of December.

Farm and field name:_____

Please record all field operations and any field observations that might influence your trial. Alternatively, the Organic Systems Plan can be provided.

Field Operation	Equipment or material used	Date	Comments

Appendix 2 - Field Data Collection Guide

A2a. Marking the Location of Your Trial and Laying Out the Plot

Materials needed

- Plot map
- Measuring tape or measuring wheel
- 20-30 flags

Please adapt our basic design (Figure 1) to identify how you will lay out the study on your farm and in a field going into the corn phase of the rotation. Identify the corner where you will start planting strip #1 and where you plan to stop planting and record the basic planting direction you will use (EW or NS). For example, you could say Strip 1 will be planted in the corner of field X (the name you use) at longitude _____ latitude _____.

	Strip 1 (Add # of rows)	Strip 2 (Add # of rows)	Strip 3 (Add # of rows)	…
Subplot 1	1 1	2 1	3 1	
Subplot 2	1 2	2 2	3 2	

Longitude and latitudes can be determined using Google maps or Apple's Compass app on a smart phone.

> **Android device:** In Google maps, touch and **hold** your current location (zoom in to increase accuracy), this will drop a pin. The coordinates should appear in the search box at the top.
>
> **Apple device:** Location services must be turned on in privacy settings. Open the Compass app to get coordinates of your current location. Alternatively, in Google maps, touch and **hold** the blue dot that represents your current location (zoom in to increase accuracy). This will drop a pin at your location. At the bottom of the screen, tap "Dropped Pin" to see the coordinates.

While we would prefer the coordinates of the sampling sites, it is also okay to send us the coordinates of two field corners collected using a fixed location and estimated distance to the spot. You could estimate the number of paces you use, distance covered in 10 paces, and record this. After selecting your sampling site, pace off the distance to a known location, for example a corner of the field. Count how many paces you walk in each direction (e.g. to the west and to the south to get to the SW corner of the field) to get to your sampling location. Record these numbers for the corner where you will start and stop planting. When we visit the field we can get the exact location.

To lay out the plot and if you are working alone, put a flag into the end of a measuring tape that is at least 100 feet long if you are using our standard design. You will need one measuring tape that is as long as the plot length you plan. Pull out the tape perpendicular to the direction you will plant and fasten the end by wrapping it around another flag. Mark out every 10 feet (or adjust to match your planter and the row width) with a flag to identify the different strips. To help you take soil samples place flags to indicate the midpoint along the 100 feet strip (50 feet segments) as explained in Figure 1.

A2b. Taking Soil Samples

This is ideally done right after you flag the plots.

Materials needed

- Plot map, paper bags, and labels provided
- Soil sampling tube (0.75-2" diameter), 12 inches deep.
- Bucket to combine soil cores to make a composite sample
- Flags

Before you start, take a core or two to make sure it is not too wet to sample. If soils are too wet it will be difficult to get them out of the sampling tube. If soils are in good shape then date the sampling bags and organize them so that you are sure that the numbers on the bags match the plots and subplots you are sampling (Figure 1).

Total number of samples per strip n = 2 composite samples per strip × number of strips.
Total number of cores taken c = 4 cores per strip × number of strips (e.g., 40 cores for 10 strips).

Within each half of the strip ("subplots") collect two 12-inch cores using a soil tube that is at least 0.75" in diameter. Please distribute sample locations within subplot to represent fairly soil variability. Place the two cores per subplot into a bucket and mix and crush cores to form a composite sample. Transfer the composite sample to the appropriately labeled bag. Once you are done you should have 2 bags representing each strip.

Place sample bags in an area that protects them from rain and direct sun for drying. After they have dried (usually within 7 days), mail them to Carmen Ugarte using the return labels provided. Make sure to include basic field information and any notes or corrections in the return envelope.

A2c. Phenotyping

Priority traits (see Table 2) will be evaluated using the following procedures.

Materials needed

- Plot map
- Record sheets
- Measuring stick in some cases

Farm and field name:_____

Please use the following table to record data collected during your evaluations. This form is also available online and can be accessed by clicking Phenotyping or typing the following URL in your computer browser http://bit.ly/2nOUu56 . Please send these records by December of each year. This form is also easily found through our eOrganic workspace.

Trait	Date recorded	Cultivar 1	Cultivar 2	Cultivar 3	Cultivar 4	Cultivar 5	Cultivar 6	Cultivar 7	Cultivar 8	Cultivar 9	Cultivar 10
Date to plant emergence											
Date to male flowering (Anthesis)											
Date to female flowering (Silking)											
Plant height (cm)											
Ear height (cm)											
Root lodging											
Stalk lodging											
Weed pressure rating (can send photos)											
Disease rating											
Stand count in $1/1000^{th}$ of acre											
Any noteworthy observation prior to harvesting											
Yield (Strip weight)											
Grain moisture (%)											
Test weight											

Anthesis (DMF)

Description/Procedure:

Taken as [MM/DD/YY] to 50 percent of a plot exhibiting anther exertion on greater than half of main tassel spike. Day of anthesis recording is shown in *Picture 1,* whereas the day after is shown *Picture 2*.

Timing: At Flowering

n = 1 date per plot

Unit: [MM/DD/YY]

Picture 1

Picture 2

Image Credit:
- 2004, 2006; Purdue University, RL Nielsen
- http://www.mississippi-crops.com/2013/06/26/identifying-corn-reproductive-growth-stages-and-management-implications/

Silking (DFF)

Description/Procedure:

Taken as [MM/DD/YY] to 50 percent of plot exhibiting silk emergence (*Picture 1*). Following day is shown in *Picture 2*.

Timing: At Flowering

n = 1 date per plot

Unit: [MM/DD/YY]

Picture 1

Picture 2

Plant Height (PHT)

Description/Procedure:

Placing measuring stick on ground next to the root crown, "plant height" is measured at the ligule of the flag leaf.

See *Picture 1*

Timing: At plant maturity

n = 1 representative plant per plot

Unit: centimeter [cm]

Notes: One plant is considered suffient since these are inbreds and hybids and are not segregating for traits. Please record date measured.

Picture 1

Ear Height (EHT)

13

Description/Procedure:

Placing measuring stick on ground next to the root crown, "ear height" is measured at the primary ear bearing node. See *Picture 1*.

Timing: At plant maturity

n = 1 representative plant per plot

Unit: centimeter [cm]

Notes: One plant is considered suffient since these are inbreds and hybids and are not segregating for traits.

Picture 1

Stalk Lodging (SLD)
Green Snap (GSP) (optional)

Stalk Lodging
Description/Procedure:

Number of plants broken between the ground level and the top ear node (picture 1).

Timing: Before Harvest

n = 1 count per plot

Unit: number of plants with SLD

Notes: Emphasis is on the number of plants, not the %, which does not tell us much. Accurate stand counts and lodging counts are essential and will be used to calculate a % lodging in later analyses.

Picture 1

Green Snap (optional)
Description/Procedure:

Number of plants broken between the ground level and the top ear node **before flowering** (picture 2).

Timing: Before flowering

n = 1 count per plot

Unit: number of plants with GSP and date of triggering event [MM/DD/YY]

Notes: Collaborators may choose to take counts of green snap following a weather event occurring before flowering that causes substantial numbers of stalks to snap. Please also record date of event.

Emphasis is on the number of plants, not the %, which does not tell us much. Accurate stand counts and lodging counts are essential and will be used to calculate a % lodging in later analyses.

Picture 2

Photo 1 credit: Gordon Johnson, UDel Extension
Photo 2 credit: UGA Cooperative Extension

Root Lodging (RLD)

Description/Procedure:

Number of plants that show root lodging per plot, i.e., those stems that lean substantially to one side (≥ 15% from vertical) (picture 2). Count includes "goosenecked" plants that have "straightened up" after becoming lodged earlier in the season (Picture 1).

Timing: Before Harvest

n = 1 count per plot

Unit: number of plants with RLD

Notes: Emphasis is on the number of plants, not the %, which does not tell us much. Accurate stand counts and lodging counts are essential and will be used to calculate a % lodging in later analyses.

Picture 1

Picture 2

Stand Count

Description/procedure:
Count the number of plants in the two center rows of each cultivar and in row sections equal to 1/1000th of an acre. If the row with is 30 inches, this section would be 17.5 ft.

Appendix 3 - Sharing Agreements

Educational Network participants will be asked to sign and return the following forms in person or by mail to the project coordinator, Claire Luby (N-227 Turner Hall, 1102 S. Goodwin Ave., MC-047, Urbana, IL 61801)

A3a. Educational Network Participants

This agreement indicates that participant contributions to meetings can be used to develop project and associated educational materials. By signing this, I acknowledge that recordings and images of meetings and exchanges may be taken and that my participation in these interactions can be used either in anonymous form without consent or in a form that identifies my unique comments or image after receiving consent.

PARTICIPANT:

_____

Date:

_____

A3b.Testing Network Members Agreement

This Agreement is a prerequisite to participate in the Strip Trials.

Participants agree to plant and test seed supplied by the network. Participants will not breed, self, or manipulate seed being tested by the network. Seed cannot be crossed nor can any breeding work be conducted on the seed. Seed not planted should be mailed back to the seed supplier or destroyed. Seed cannot be distributed to a third party.

Farmer members shall use data produced by the network to inform decisions made for their breeding program, seed expansions, or seed sales. Participants shall not re-publish or provide to a third party the official network data, unless the data is marked for public sharing. No network data revealing coded or uncoded pedigree information shall be provided or shared with any non-members of this network or the public, unless the data is specified for public sharing. Participating members shall consult with the project Coordinator before publishing related data. Participants agree to share data freely with the network in raw and summarized form.

FARMER	**UNIVERSITY OF ILLINOIS**
_____	_____
By :	By:
DATE:	
_____	_____

A3c. Income Loss Compensation

Collaborators participating in strip trials will receive compensation of $250.00 to compensate for any yield loss and access to detailed management records. To receive this compensation collaborators will need to complete the vendor information form https://www.obfs.uillinois.edu/payments-vendors-students/vendor-setup-update/ and register as a "Research Participant" to be paid. A paper version of this form will be mailed with this manual.