Quick Reference Guide for the 3SI Research Block, Plots, and Garden

Option 1

Must Haves:

-Must have 4 distinct and same-sized plots: 3-Sisters, Corn (only), Bean (only), and Squash (only)

-All plots must be managed in the same way (fertilizer, watering, plot size, etc.)

-All plots must be maintained as best as possible so that post-season soil samples can be taken from each plot for scientific analysis

-Plant variety must stay consistent in all blocks. If turtle mountain white is used in the 3-Sisters plot, it must be used in all plots. Plant variety can however change from one research block to another

Can't Haves:

-Cannot use different practices between plots. If mounds or ridges are used in one plot, they must be used in all plots

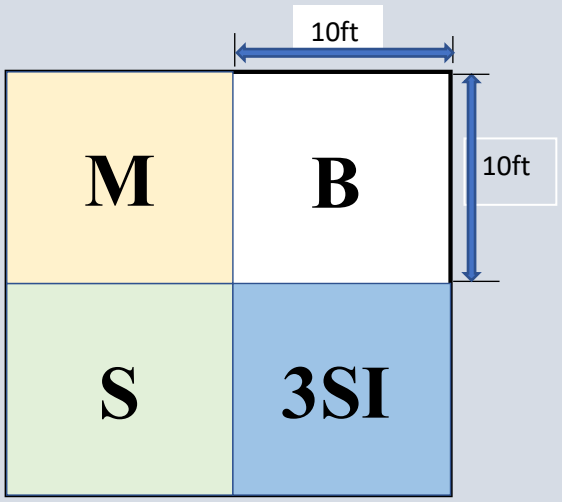
Up to each gardener:

-They type of seeds used. Gardeners can use any seeds they choose in each plot.

-The location of each plot (either the corn, bean, 3-Sisters, or squash plots) can be wherever the gardener chooses. Plots can be scattered around if they need to be, or right next to each other.

-Your research block and plots can be as big as you want them to be! Just be consistent in their size from one research plot and block to another.

Quick definition guide: Plot = one individual research garden.
Block = four individual research gardens



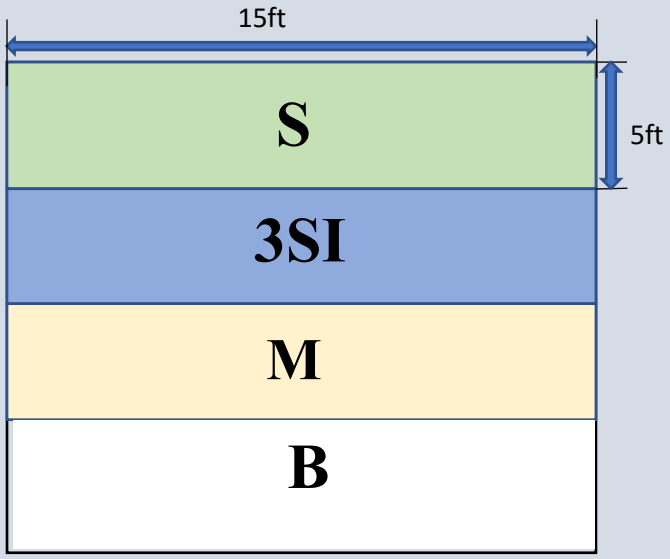


Figure 1 and 2. Images showing different ways a gardener could layout their 3-Sisters research block. M= Maize; B= Beans; S= Squash; 3SI= Three Sisters. Note: these are just example ways to layout your research blocks!

Option 2

-Plant a Three Sisters garden and manage it however you wish-

Must haves:

- Must plant and maintain a Three Sisters garden (maize, bean, squash), with the ultimate goal being to collect post-season soil samples.

Up to each gardener:

-Gardener chooses the size of the garden and the type of crop varieties used

Questions? Feel free to reach out to a member of the research team!

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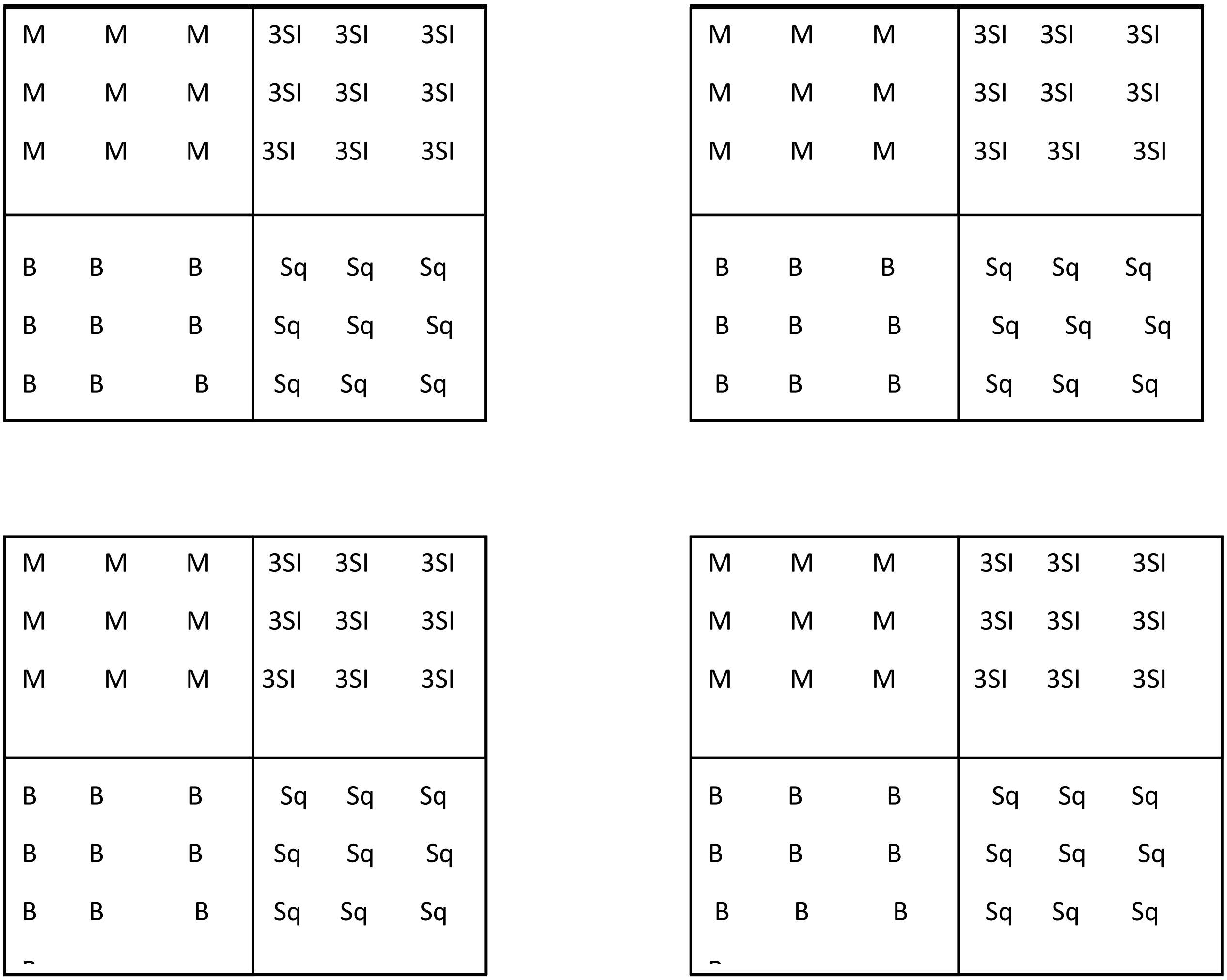
Option 1 Supplementary Info

Images

1)



M	M	M	3SI	3SI	3SI
M	M	M	3SI	3SI	3SI
M	M	M	3SI	3SI	3SI
B	B	B	Sq	Sq	Sq
B	B	B	Sq	Sq	Sq
B	B	B	Sq	Sq	Sq

M	M	M	3SI	3SI	3SI
M	M	M	3SI	3SI	3SI
M	M	M	3SI	3SI	3SI
B	B	B	Sq	Sq	Sq
B	B	B	Sq	Sq	Sq
B	B	B	Sq	Sq	Sq

M	M	M	3SI	3SI	3SI
M	M	M	3SI	3SI	3SI
M	M	M	3SI	3SI	3SI
B	B	B	Sq	Sq	Sq
B	B	B	Sq	Sq	Sq
B	B	B	Sq	Sq	Sq

M	M	M	3SI	3SI	3SI
M	M	M	3SI	3SI	3SI
M	M	M	3SI	3SI	3SI
B	B	B	Sq	Sq	Sq
B	B	B	Sq	Sq	Sq
B	B	B	Sq	Sq	Sq

Image 1. Showing 4 replicated plots with possible plant positions within each plot. M= maize; 3SI= 3 sisters; B= beans; Sq= squash

Note: 4ft between from center of 3SI mound to center of next 3SI mound

Images

2)

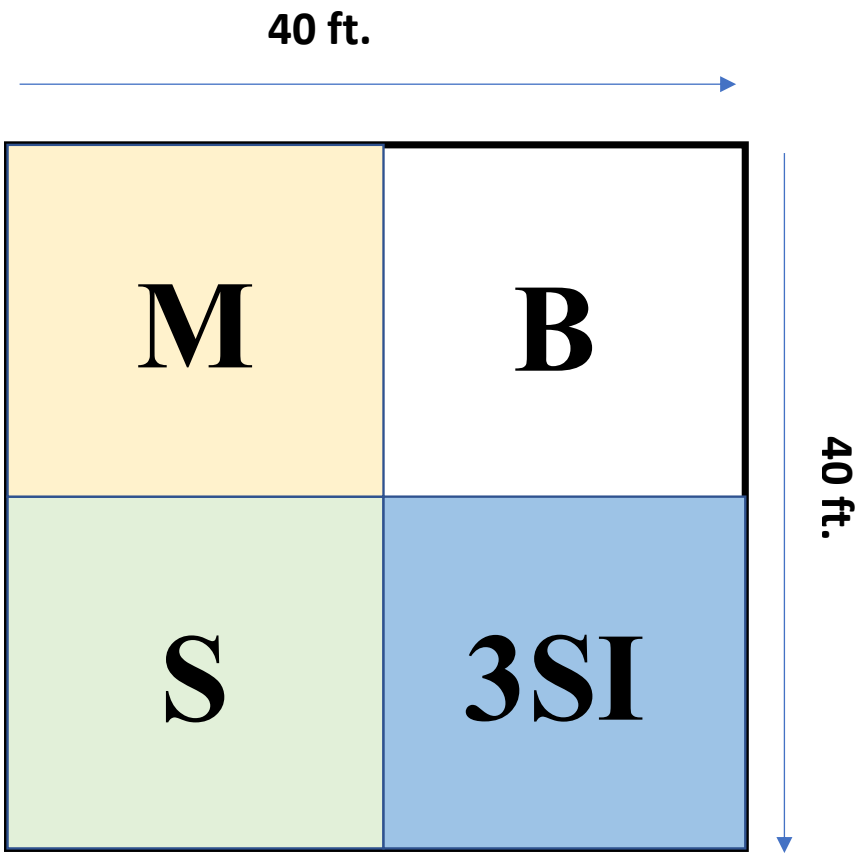


Image 2. Showing dimensions of each research block with plots denoting possible plant species positioning. M=maize; B=beans; S= squash; 3SI= three sisters

Note: 4 research block are needed per community!

Image

3)

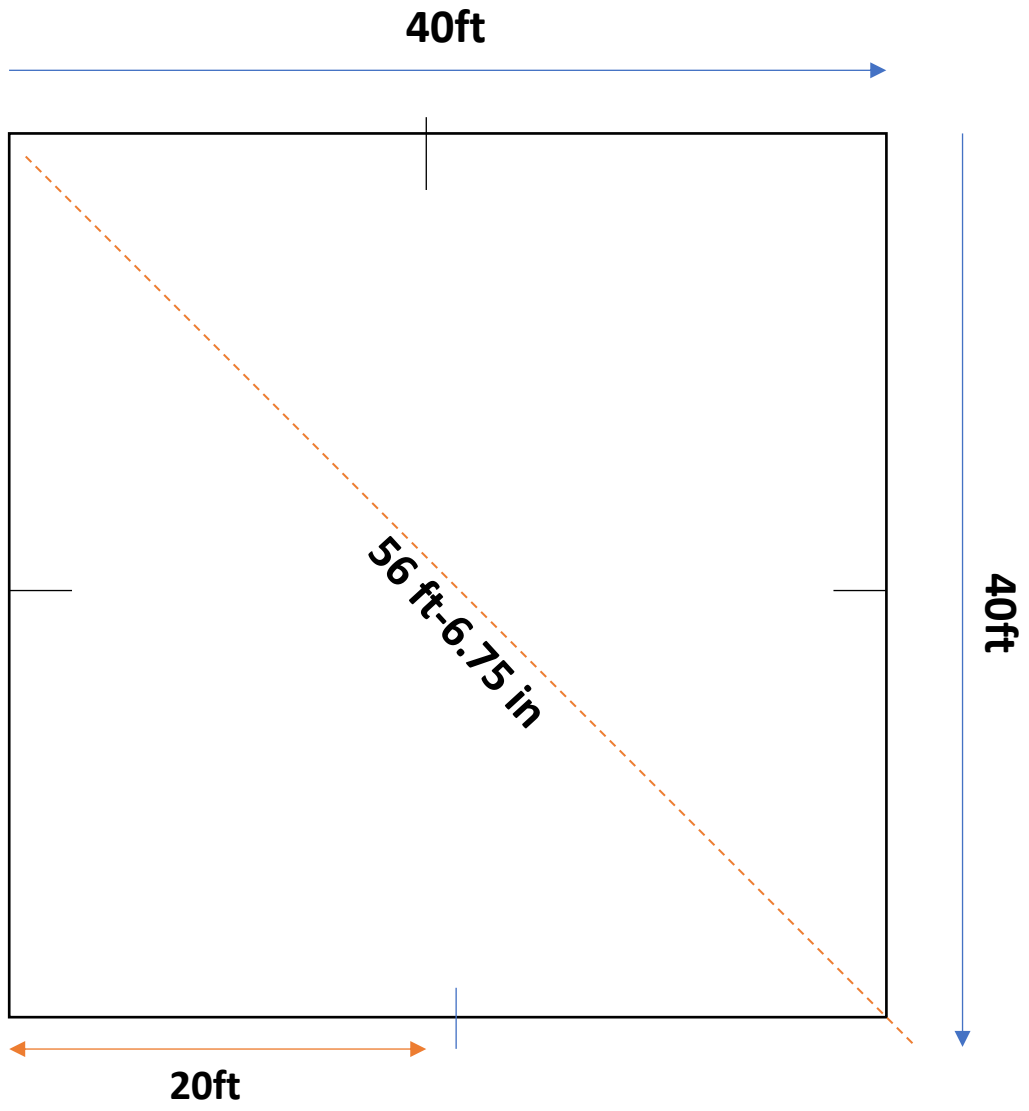


Image 3. Showing dimensions of individual plots within the research block

Images

4)

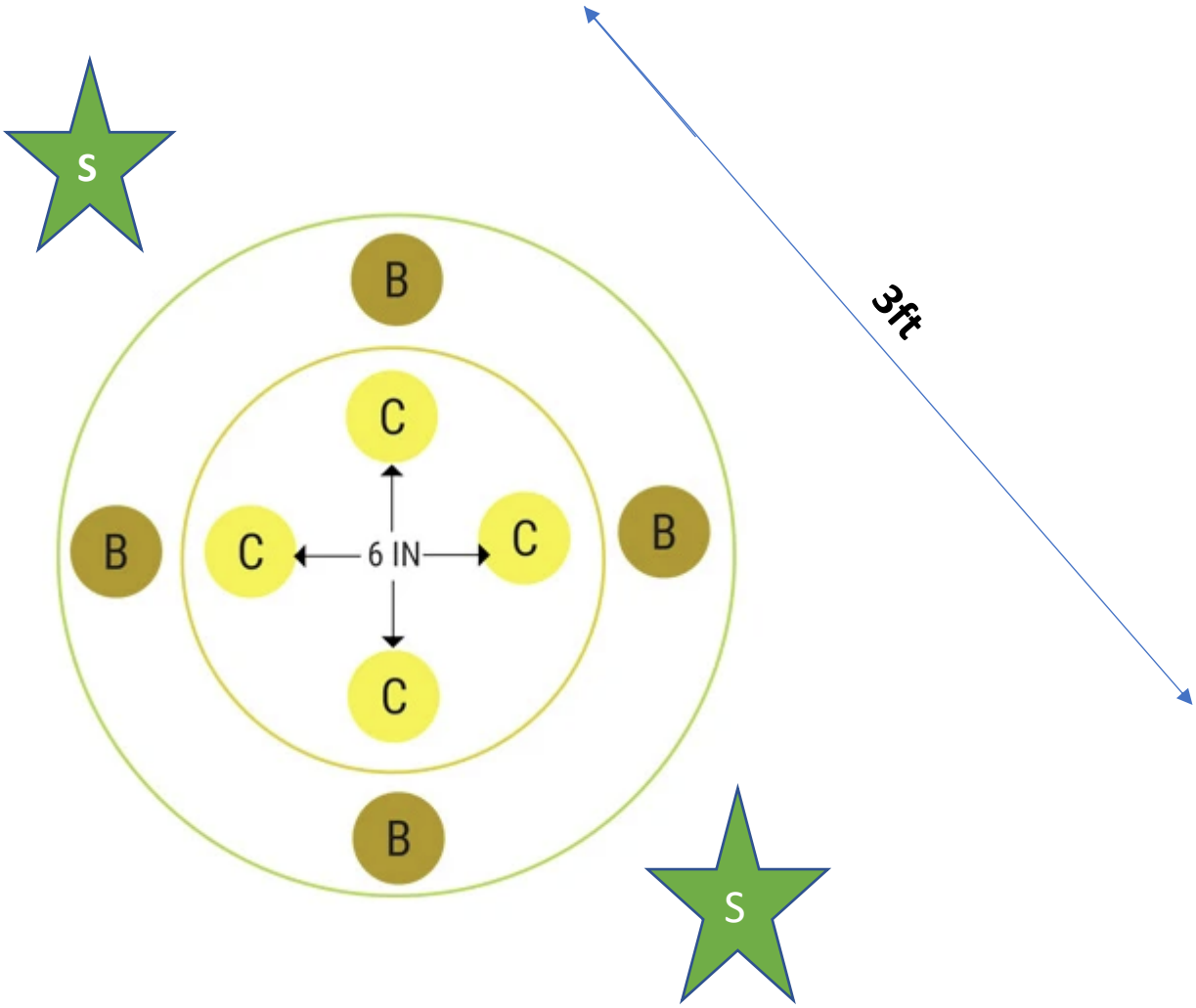


Image 4. Showing seed placement within the three sisters plot. C=corn; B= beans; S= squash

-Corn is planted 6 inches from the center

-Beans are planted 11 inches from the center

-Squash are planted 18 inches from the center

Plot layout

Supplies needed:

-String line (or paint)

-2 tape measures

-one with at least 60ft capability

-one with at least 40ft capability

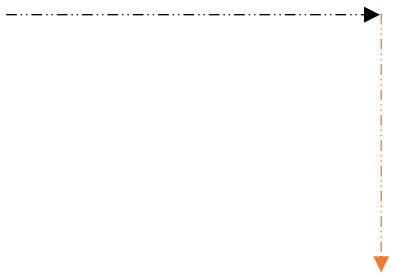
-Stakes and mallet to drive the stakes

Steps for plot layout:

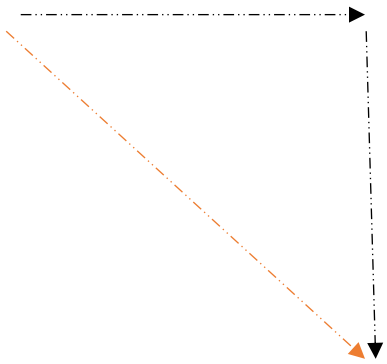
1. Identify a large enough plot of land that will accommodate a 40ft by 40ft square (this step must be done 4 times!)

2. Drive a stake into the ground and hook the 40ft measuring tape onto the stake (stake 1). Measure out 40ft and drive another stake into this spot (stake 2). (**this will be the top leg of the overall research plot!)**

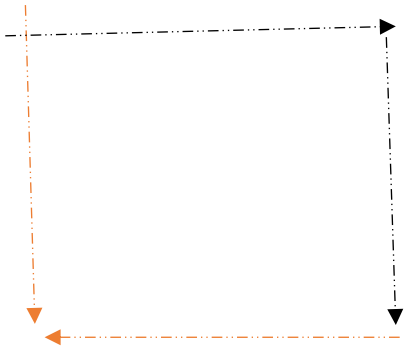
3. Now measure out 40ft from the second stake at as close to a right angle as possible and temporary notate where this spot is (stake 3). **(this will be the right leg of the overall research plot!).** Leave the measuring tape hooked on stake 2 when completed with this step.



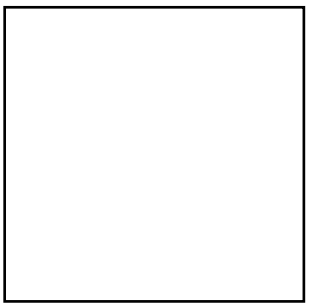
4. Now hook the 60ft tape onto (stake 1), walking towards (stake 3) for a final measurement of 56 ft 6.75 inch. Holding the measuring tape still connected to (stake 2) with a measurement of 40ft, and the measuring tape connected to (stake 1) with a measurement of 56 ft 6.75 inch, join these two tapes together to identify the true position of (stake 3) See Image B at front of protocol for more detail. **(You should be placing one tape onto the other to find this true position for stake 3!)**



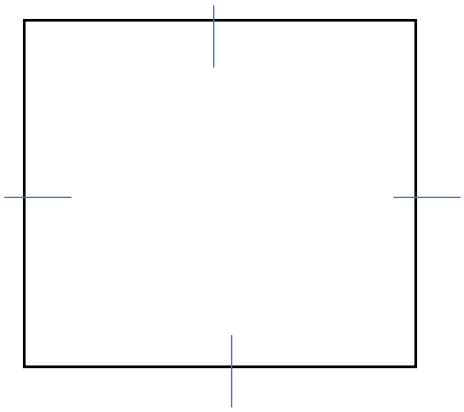
5. Connect a measuring tape to (stake 3) and leave the measuring tape still connected to (stake 1) that was used to make the cross leg. Measure out 40ft as close to a right angle as possible from (stake one) and temporary identify this spot (stake 4). Using the tape connected to (stake 3) measure out 40 ft into the direction of (stake 4). The true position of (stake 4) is where both 40ft measurements intersect. (**You should be placing one tape onto the other to find this true position for stake 4**!)



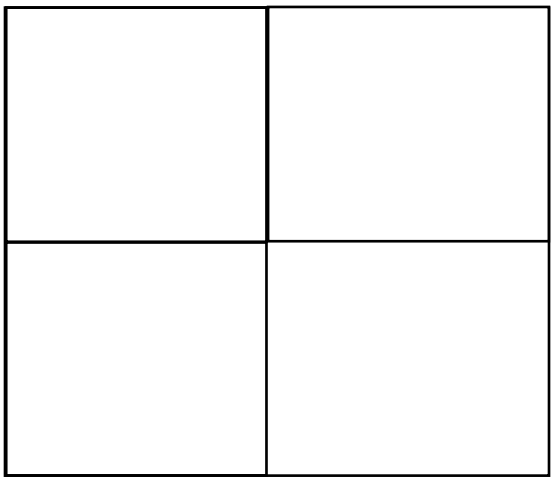
6. You should not have set of 4 stakes arranged in a perfect square, with 40ft legs on each side. Add string lines to this stakes or paint onto the ground if necessary.



7. Measure 20 ft from each stake to find the midpoint of each leg of the square. Add a stake here or spray paint to notate this position on all four sides of the research plot square.



8. Using string line or paint, connect the marks on the different sides of your block



9. Your research plot has now been laid out. Time to determine what will be planted in each block. See Image 2 at front of protocol for an example plot design.

Seed Preparation for 3SI Research Plot

Supplies needed: corn, bean, and squash seeds

1. Squash seeds should be started indoors in a green house setting as close to April 4th as possible

2. Corn seeds should be planted into the ground first, as close to May 5th as weather allows. See Image C for seed placement diagram.

   Two weeks after planting corn seeds

3. Beans and squash plants can now be planted into the plot with the corn. See Image C for seed placement diagram.

***Notes: In the plots composed of strictly corn, strictly beans, or strictly squash, please plant these seeds in the same pattern as used in the 3SI plots!

***Notes: Please use the same soil management practices in all your plots! (Same fertilizer amounts, mounds / ridges / or no mounds/ridges, and irrigation)

Prepared by Derrick Kapayou