

Plant Science Problem Solving #1

Use the Micro Green fertilizer label to answer this question

How many total pounds of Potassium is in this fertilizer if there are 50 total pounds of product in the bag?

- A. 1 pound
- B. 2 pounds
- C. 5 pounds
- D. 8 pounds



Plant Science Problem Solving #2

Use the Micro Green fertilizer label to answer this question

Assuming there are 50 total pounds of product, how many pounds are inert material?

- A. 28 pounds
- B. 30 pounds
- C. 35 pounds
- D. 40 pounds



Plant Science Problem Solving #3

The label shows a "Restricted-Entry Interval (REI): 12 hours." Which action matches the label's instruction about REI?

- A. People may enter the treated area immediately after application if they wear gloves.**
- B. No one should enter the treated area without protective clothing for 12 hours after application, except as the label allows.**
- C. The REI tells you how long the product will control pests.**
- D. REI only applies to the person who applied the product and not to other workers.**

Plant Science Problem Solving #4

If a soil sample is comprised of 25% Sand, 45% Silt, and 30% Clay what type of soil is it?

A. Clay Loam

B. Silty Clay

C. Silty Clay Loam

D. Loam

Plant Science Problem Solving #5

If a soil sample is comprised of 25% clay and 60% sand, and 15% silt, what is the texture class?

A. Silt Loam

B. Sandy Loam

C. Silty Clay Loam

D. Sandy Clay Loam

Plant Science Problem Solving #6

The yellow arrow is pointing to what part of a flower?

- A. Stigma
- B. Style
- C. Anther
- D. Filament



Plant Science Problem Solving #7

The yellow arrow is pointing to what part of a flower?

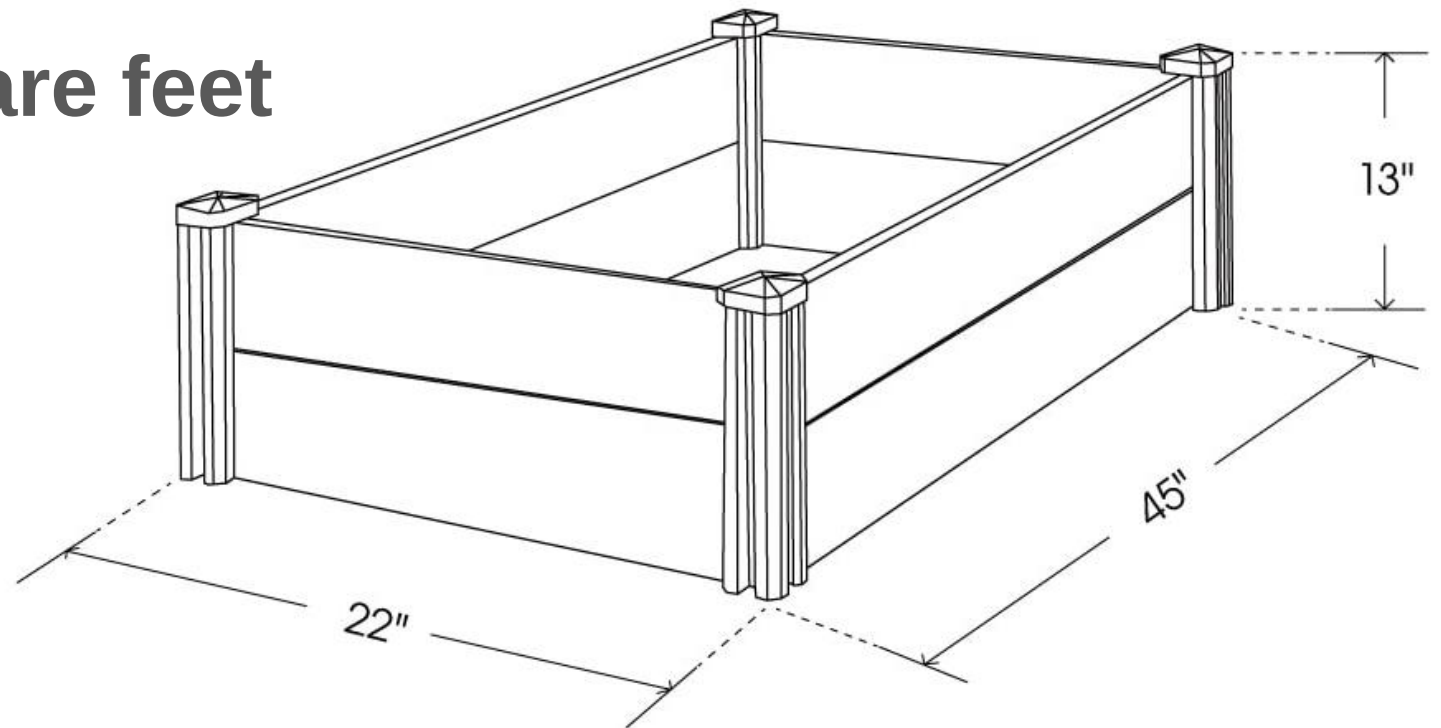
- A. Stigma
- B. Style
- C. Anther
- D. Filament



Plant Science Problem Solving #8

What is the area of this raised bed?

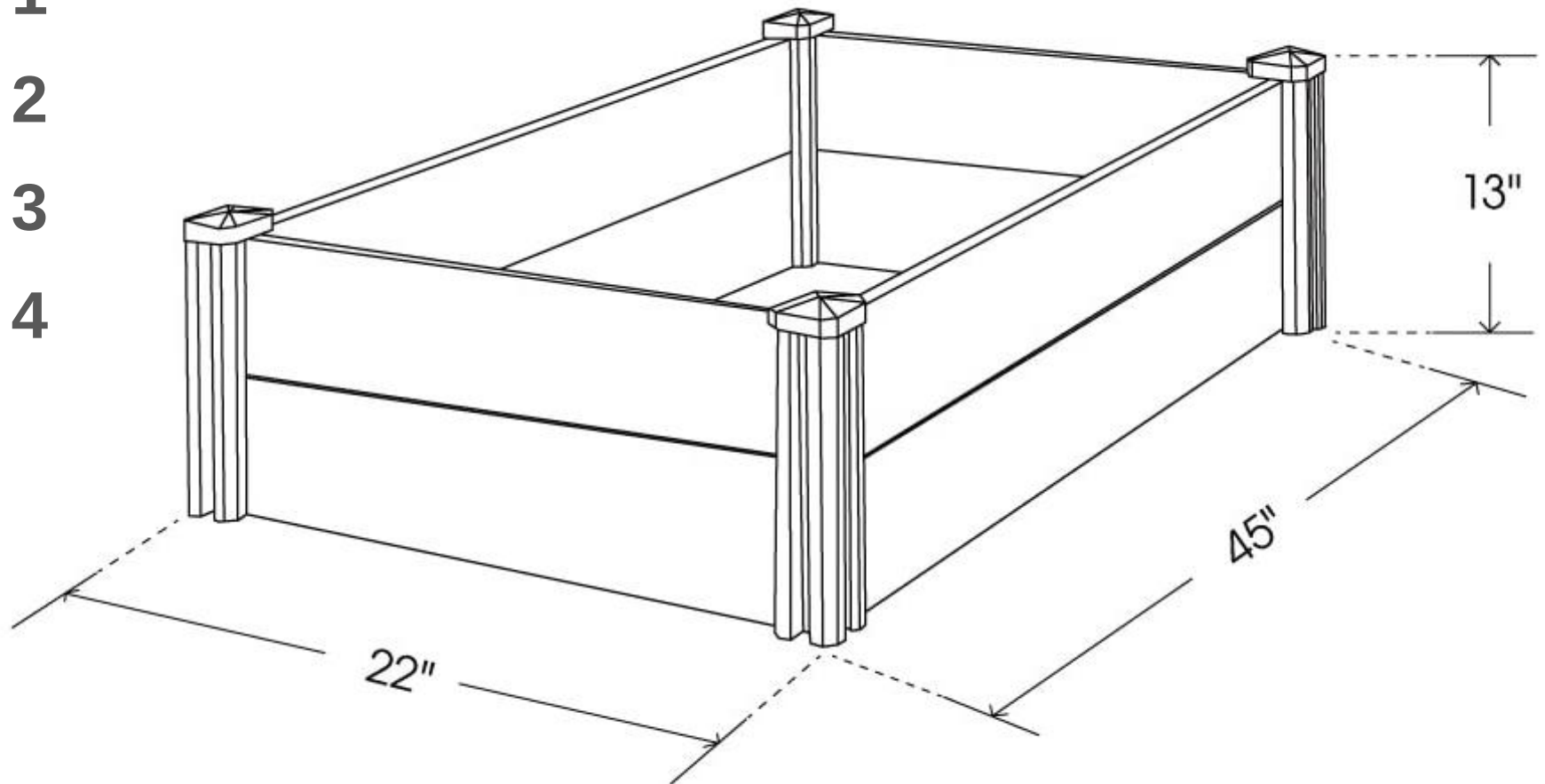
- A. .48 square inches
- B. 990 square inches
- C. 134 square feet
- D. 67 square feet



Plant Science Problem Solving #9

You need to buy replacement boards for this project. Boards come in 6 feet sections. How many boards do you need to buy to replace two rows of boards with the least amount of waste?

- A. 1
- B. 2
- C. 3
- D. 4



Plant Science Problem Solving #10

What nutrient is this plant most likely deficient in?

- A. Nitrogen**
- B. Phosphorus**
- C. Potassium**
- D. Magnesium**



Plant Science Problem Solving #11

The packet says these plants are “indeterminate.”
What does this mean?

- A. They are not sure what they truly are
- B. They will grow to a predetermined height and stop growing
- C. They will continue to grow all growing season until killed by frost
- D. They will only grow in ideal growing conditions

Plant Science Problem Solving #12

If you have two eight foot rows, how many Rutgers tomato plants could you plant in those rows using the maximum spacing?

- A. 6
- B. 8
- C. 10
- D. 12

Plant Science Problem Solving #13

If the peppers are started on April 15, when can you expect a harvest?

- A. April 25
- B. May 6
- C. June 15
- D. June 24



Plant Science Problem Solving #14

Which plant is a vine?



A



B



C

Plant Science Problem Solving #15

How many pounds of potassium are in this 100 pound bag of fertilizer?

- A. 5
- B. 11
- C. 24
- D. 60

24-5-11

LESCO® PROFESSIONAL TURF FERTILIZER

For use in Rotary Spreaders Only

Contains LESCO® Poly Plus® Sulfur Coated Urea to provide a uniform growth with extended nitrogen feeding.

50 lb COVERS 12,000 sq ft

DIRECTIONS FOR USE: This LESCO product is a professional quality turf fertilizer for use on fairways, tees, and other turf. The best results with this product are obtained when it is applied to dry turf and actively growing grass. Water into the turf soon after application. Avoid mowing immediately following application to prevent pick-up.

For best results, sweep or blow the fertilizer off walks and painted surfaces following application to avoid discoloration.

Recommended applications are at the rate of one pound of nitrogen per 1,000 sq ft. Actual rates and timing of applications will vary with weather, soil and turf conditions.

For additional product assistance, call LESCO, Inc. in Cleveland, Ohio at 1-800-321-5325.

COVERAGE: 50 pounds of LESCO 24-5-11 Fertilizer covers approximately 12,000 sq ft at the application rate of one pound of nitrogen (4.2 pounds of fertilizer) per 1,000 sq ft.

ROTARY SPREADER SETTINGS: Apply LESCO Fertilizers and Combination Products only with a rotary spreader. The following rotary spreader settings are approximate for the application rates of one pound of nitrogen per 1,000 square feet. You may need to adjust the setting depending on walking speed, spreader condition and product.

ROTARY SPREADER	SETTINGS
LESCO Calibration Gauge	#15
SCOTTS® R&A	J ½
Cyclone® or Spyker®	4 ¼
LESCO Pendulum	28
Lely®	4 ½ II

GUARANTEED ANALYSIS

TOTAL NITROGEN (N)..... 24.00%

1.90% Ammoniacal Nitrogen

22.10% Urea Nitrogen*

AVAILABLE PHOSPHATE (P₂O₅)..... 5.00%

SOLUBLE POTASH (K₂O)..... 11.00%

SULFUR (S) Total..... 3.65%

3.65% Free Sulfur (S)

IRON (Fe) Total..... 3.00%

DERIVED FROM: Polymer Coated Sulfur Coated Urea, Urea, Ammonium Phosphate, Muriate of Potash, Ferrous Sulfate Monohydrate.

CHLORINE (Cl) Max..... 8.25%

*10.80% Slowly Available Urea Nitrogen from Polymer Coated Sulfur Coated Urea.

F1560

CONDITION OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully and completely. It is impossible to eliminate all risks inherently associated with the use of this product. To the extent consistent with applicable law, Buyer and/or User assume all risks of ineffectiveness or other unintended consequences or damages that may result from conditions outside or beyond the control of LESCO, Inc. including but not limited to, such factors as manner of use or application, weather or weather conditions outside the range considered normal at the application site or for the time period in which the product is applied, the presence of other materials, incompatible products, or other influencing factors which are beyond the control of LESCO, Inc. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and/or User, and Buyer and/or User agrees to hold LESCO, Inc. harmless for any claims relating to such factors.

LESCO, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with the Directions for Use under normal use conditions. To the extent consistent with applicable law, this warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of LESCO, Inc. and Buyer and/or User assume the risk of any such use. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, LESCO, INC. MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE BUYER AND/OR USER AND THE EXCLUSIVE LIABILITY OF LESCO, INC. FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF LESCO, INC., REPLACEMENT OF THE PRODUCT, OR IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL LESCO, INC., BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

LESCO, Inc. offers this product, and Buyer and/or User accepts it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of LESCO, Inc.

Information concerning the raw materials composing this product can be obtained by writing to: LESCO, Inc., Attn: RA Dept, 1385 East 36th Street, Cleveland, Ohio 44114-4114, referring to the item number found on this bag.

Information regarding the contents and levels of metals in this product is available on the Internet at <http://www.aapfco.org/metals.htm>.

Poly Plus is comprised of Polymer Coated Sulfur Coated Urea.

LESCO and Poly Plus are registered trademarks and the sweeping design is a trademark of LESCO Technologies, LLC. SCOTTS is a registered trademark of The SCOTT Company. Cyclone and Spyker are registered trademarks of Spyker Spreaders, LLC. Lely is a registered trademark of C Van Der Lely N.V.

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Plant Science Problem Solving #16

One bow uses 12 feet of ribbon. How many bows can be created from one spool?

- A.1**
- B.2**
- C.3**
- D.4**



Plant Science Problem Solving #17

One bow uses 12 feet of ribbon.
How many spools are needed to make 10 bows?

- A. 3
- B. 5
- C. 7
- D. 10



Plant Science Problem Solving #18

If each spool of ribbon costs \$7.99 and each bow uses 12 feet of ribbon, what is the cost to make each bow?

- A. \$0.66
- B. \$3.19
- C. \$3.99
- D. \$7.99



Plant Science Problem Solving #19

Which nutrient should be fertilized for in this garden soil?

A. Magnesium

B. Nitrogen

C. Phosphorus

D. Potassium

Plant Science Problem Solving #20

How many pounds of lime should be mixed into the soil for a 150 square foot garden?

A.6

B.8

C.10

D.12

Use for problem 3

RESTRICTED USE PESTICIDE
Due to Toxicity to Fish and Aquatic Organisms
For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.


LEVERAGE[®] 360
Insecticide

Net Contents:
1 Gallon

GROUP 3 | 4A INSECTICIDE

For protection of listed crops from certain insects and promoting enhanced plant health and yield.

ACTIVE INGREDIENT: Imidacloprid*	21.0%
β-cyfluthrin**	10.5%
OTHER INGREDIENTS:	68.5%
Contains 2 lbs imidacloprid per gallon plus 1 lb β-cyfluthrin per gallon	TOTAL: 100.0%

* CAS# - 138261-41-3 ** CAS# - 68359-37-5
EPA Reg. No. 264-1104

STOP - READ THE LABEL BEFORE USE
KEEP OUT OF REACH OF CHILDREN
CAUTION

For MEDICAL And TRANSPORTATION Emergencies ONLY
Call 24 Hours A Day 1-800-334-7577
For PRODUCT USE Information Call 1-866-99BAYER (1-866-992-2937)
See Back Panel for First Aid Instructions and Booklet for Complete Precautionary Statements and Directions for Use.

Produced for:
Bayer CropScience LP
800 N. Lindbergh Blvd.
St. Louis, MO 63167

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Use for problem 3

- The application is made in accordance with an active state-administered apiary registry program where beekeepers are notified no less than 48-hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying.
- The application is made due to an imminent threat of significant crop loss, and a documented determination consistent with an IPM plan or predetermined economic threshold is met. Every effort should be made to notify beekeepers no less than 48-hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

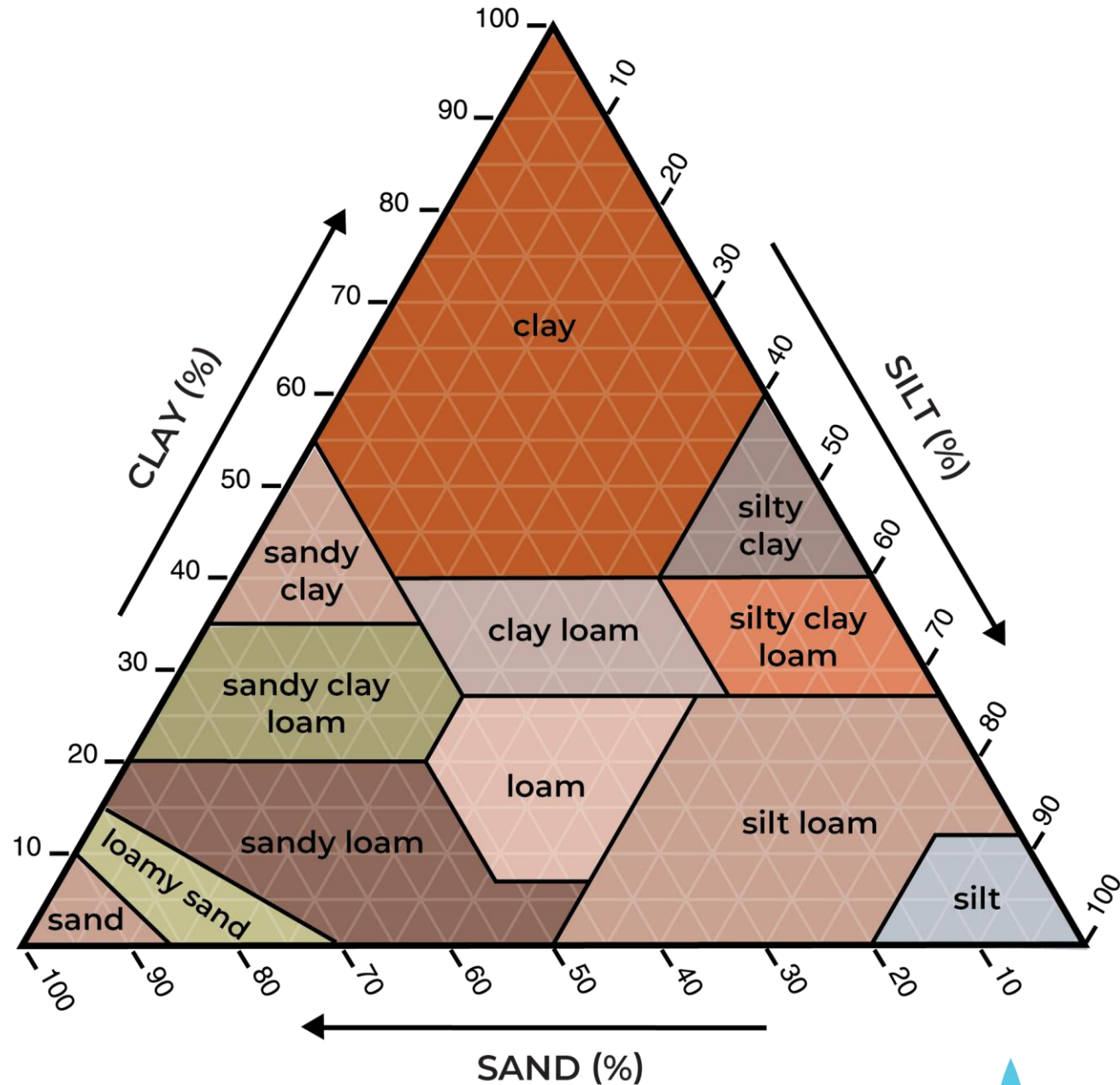
Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval **(REI of 12 hours)**.

For entry into treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, wear:

- Coveralls
- Chemical-resistant gloves, such as barrier laminate or viton
- Shoes plus socks

Use for problems #4 and 5

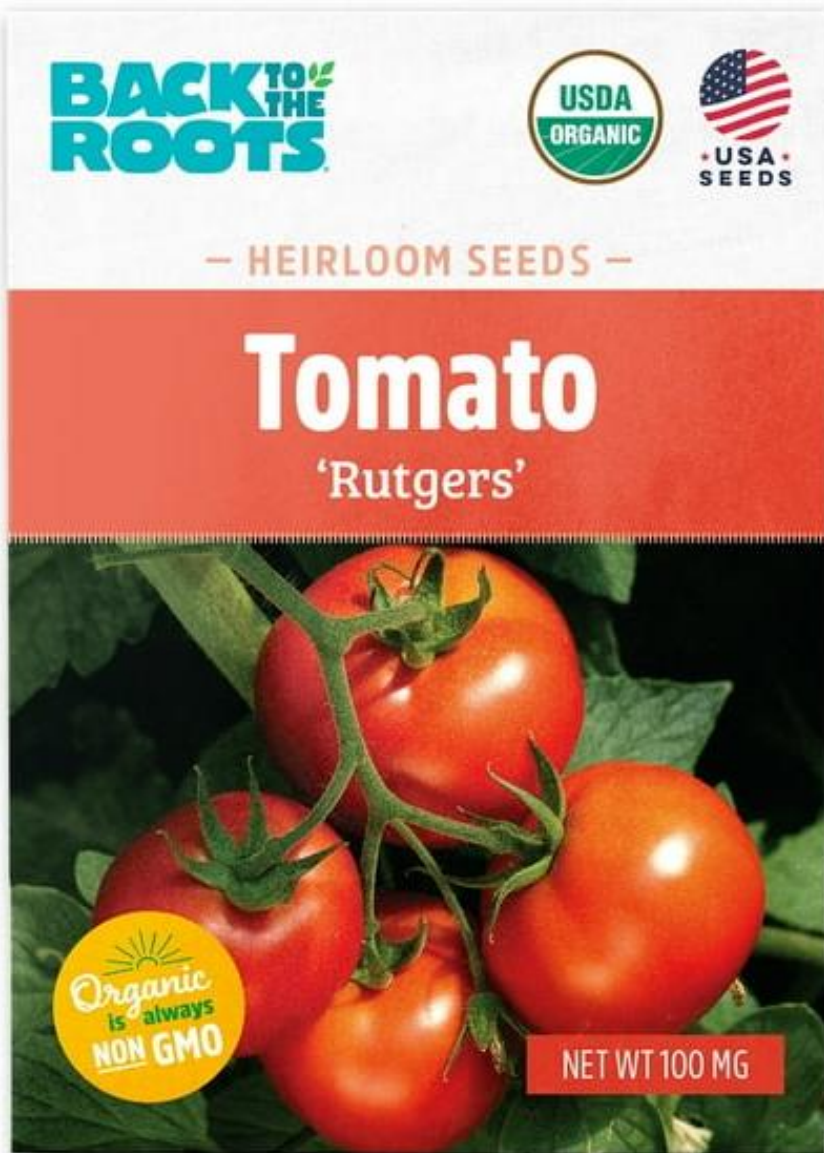


USDA soil textural triangle

Source: National Agronomy Manual, USDA



Use for problems 11 and 12



Tomato

Organic 'Rutgers'

Grow Guide

Plant 2–3 seeds per starter pot indoors 4–6 weeks before transplanting. Thin to 1 plant per pot before transplanting. Staking not required but optional to support plant growth.

Transplant Outdoors



- Jun
- May
- Apr–May
- Feb–Apr, Sep

INDETERMINATE/VINING

 Full Sun

 1/4" Planting Depth

 18–24" Spacing

 7–14 Days to Germination

 74 Days to Harvest

 4–6 oz Fruit Size

Use for problems 19 and 20

SAMPLE HISTORY

Sample ID	Field ID	LAST CROP		LAST LIME APPLICATION		SOIL INFORMATION				
		Name	Yield	Months Prev.	Tons/Acre	SMU-1 %	SMU-2 %	SMU-3 %	Yield Estimate	Productivity Group
CB001										

LAB TEST RESULTS (see Note 1)

Analysis	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)	S.Salts (ppm)
Result	7	181	1245	297	4.7	10.8	0.4	6.4	0.3	38
Rating	L	H-	M+	VH	SUFF	SUFF	SUFF	SUFF	SUFF	L

Analysis	Soil pH	Buffer Index	Est.-CEC (meq/100g)	Acidity (%)	Base Sat. (%)	Ca Sat. (%)	Mg Sat. (%)	K Sat. (%)	Organic Matter (%)
Result	6.2	6.17	5.9	23.0	77.0	52.4	20.6	3.9	4.9

FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: VEGETABLE GARDEN (210)

610. LIME RECOMMENDATIONS: Apply 8 pounds of agricultural limestone (ground or pulverized) per 100 square feet. If lime is not going to be mixed into the soil, make several small applications of up to 5 lbs each, at intervals of 1 to 6 months, until the full amount is applied.

991. "Explanation of Soil Tests, Note 1" and other referenced notes are viewable at www.soiltest.vt.edu under Report Notes.

222. FERTILIZER RECOMMENDATIONS: Apply 4 lbs (9 cups) of 5-10-5 per 100 square feet. For additional information on fertilization, see Note 19.

677. Soluble Salts are not high enough to cause salt injury.