Students please affix one of your self adhesive identification labels to this space. Do not obscure other parts of this page with the label. If you do not have a self adhesive identification label, please complete the following information. Write your name as it appears on your badge. **Your Name:** _____ **Participation Number:** [ ][ ][ ] 0 3 [ ][ ][ ] 0 [ ] **Two letter state abbreviation.** → **State code (0301, 0302, …… to 0350)** **Team member number (01, 02, 03, or 04)**	**Students please do not write or mark within this box.** *Judges, after this skill sheet has been scored and double checked, write the total score for this activity in the blank below.* **Skill Activity Score:** _____ **Judges Initials:** _____

2010 National FFA Agricultural Mechanics Career Development Event

Machine and Equipment Systems Skill Sheet

There are multiple parts to this activity!

Please read and follow directions carefully! Use your time wisely!

GENERAL INFORMATION/DIRECTIONS:

For this skill activity assume that you are the manager of an agricultural operation. The operation has a cropping enterprise that consists of 1500 acres, currently split equally, with half of the production in corn and half in soybeans.

For the past three seasons you have had to treat for black cutworm in your rotation; one year of corn followed by one year of soybeans. The management of this rotation has become a concern due to the increased pest problem. In addition, a broiler operation has been built within hauling distance of your farming operation. The boiler operation is paying a 70 cent premium for non-GMO corn. Consequently, you are modifying your rotation to two years of corn followed by one year of soybeans. As a management practice it is cost effective for you to apply Force® 3G insecticide during planting. (Refer to the Force® 3G label for more information.)

For this scenario you are banding the Force® 3G and will be planting at 5 mph. Information as to whether you are in the first or second year of your corn rotation is provided at your station. If you are in group "A" you are in the first year of your corn rotation and if you are in group "B", you are in the second year of your corn rotation for this skill activity. (A = 1st year, B = 2nd year of corn rotation.)

Before planting can begin, you will need to perform the following tasks: using the insecticide label provided, determine the correct rates to be applied in various situations; determine the amount of insecticide needed at the indicated rates for your year of the corn rotation; the cost of the insecticide based on the acreage required for a two year corn one year soybean rotation; and determine what the calibration of the planter should be for the year of rotation of your scenario.

(Conversion factors: 1 mile = 5280 ft., 1 acre = 43,560 ft^2, 1 lb. = 16 oz.., Area = length X width)

_____

PROCEDURES: **(Station No. _____)**

Because you are working around machinery, safety glasses must be worn at all times and gloves when working with the planter.

1. Using the information provided at your station determine the following:.

   Planter Model _____ Number of rows _____ Row spacing (in Inches) _____

2. With the change to a two year rotation of corn followed by soybeans what is the:

   a. ***Minimum*** rate of Force® 3G to be applied at planting for ***first*** year of corn? _____ oz./1,000 ft of row

   b. ***Maximum*** rate of Force® 3G to be applied at planting for ***first*** year of corn? _____ oz./1,000 ft of row

   c. ***Minimum*** rate of Force® 3G to be applied at planting for ***second*** year of corn? _____ oz./1,000 ft of row

   d. ***Maximum*** rate of Force® 3G to be applied at planting for ***second*** year of corn? _____ oz./1,000 ft of row

3. For the scenario listed above and information provided at your station, what is the recommended planter setting for a John Deere MaxEmerge planter (adjustable dial 0-79)? _____ (0-79)

4. The planter will be operated for 500 ft. using a motor stand.
   (NOTE: The Force 3G Gauge Setting Table is based on 1,000 ft.)

   a. How much product did you collect (corrected for 1,000 ft.)? _____ oz

   b. Is this within the acceptable application rate range for your scenario? *Circle one* ***Yes*** / ***No***

5. You are purchasing Force® 3G for the year specified as your corn rotation:

   a. Using the correct application rate of Force® 3G, if your observed value was incorrect, how many pounds will it take to treat the new corn acreage based on your two year corn, one year soybean rotation? _____ to _____ lbs.

   b. You have received a price quote for Force® 3G at $4.73/pound. Based on your scenario what is the cost range to treat the total corn acreage for your rotation? $_____ to $_____

   c. Based on your new acreage, what is the average cost per acre to treat the corn for your scenario with Force® 3G? $ _____

Skill Activity Score Sheet

Question Number	Possible	Score
1. Planter information: (1)	3	_____
2. Minimum rate first year: (2a)	2	_____
3. Maximum rate first year: (2b)	2	_____
4. Minimum rate second year: (2c)	2	_____
5. Maximum rate second year: (2d)	2	_____
6. Recommended planter setting: (3)	3	_____
7. Collected the correct amount of pesticide: (4a)	3	_____
8. Within acceptable limits: (4b)	2	_____
9. Amount of insecticide to treat total acreage: (5a)	3	_____
10. Total cost of insecticide for scenario: (5b)	3	_____
11. Cost per acre for insecticide for scenario: (5c)	3	_____
12. Safety and work habits: (safety glasses and gloves)	2	_____
TOTAL POINTS: (Double check point total and enter on the front page.)	30	_____

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.

GROUP 3 INSECTICIDE

Force® 3G

Insecticide

For Use to Control Insects on Field Corn, Popcorn, Seed Corn and Sweet Corn

Active Ingredient:
Tefluthrin: (2,3,5,6-tetrafluoro-4-methylphenyl)methyl-(1α,3α)-(Z)-(±)-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate 3.0%

Other Ingredients: 97.0%

Total: 100.0%

Contains 3 lbs. active ingredient per 100 lbs. of granular insecticide.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use on printed bag.

EPA Reg. No. 100-1075 EPA Est. 100-NE-001

Product of United Kingdom
Formulated in the USA

PRODUCT ID.
72550

SCP 1075A-L1G 1009

50 pounds
Net Weight

syngenta®

SCP 130-1075A-L1G

FIRST AID Contains a Pyrethroid Insecticide (Tefluthrin)	
If in eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident) Call **1-800-888-8372**	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Harmful if absorbed through skin, inhaled or swallowed. Avoid contact with eyes, skin, or clothing. Avoid breathing dust. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.

Skin exposure may result in a transient sensation described as a tingling, itching, burning or prickly feeling. Onset may occur immediately to 4 hours after exposure and may last 2-30 hours without apparent skin damage. Wash exposed areas once with soap and water. Relief from the skin sensation may be obtained by applying an oil-based cream.

Personal Protective Equipment (PPE)

Some of the materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves Category A, made of any waterproof material such as polyethylene or polyvinyl chloride (PVC) ≥ 14 mils
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Remove PPE immediately after handling this product.
- Wash the outside of gloves before removing.
- As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

This pesticide is very highly toxic to freshwater and estuarine fish and invertebrates. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water.

Endangered Species Restrictions

This product may pose a hazard to endangered aquatic species. Follow all use directions.

CONDITIONS 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. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, Inc. or Seller. To the extent permitted by applicable law, Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA 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 directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions, or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and (2) Buyer and User assume the risk of any such use. TO THE EXTENT PERMITTED BY APPLICABLE LAW, SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.

To the extent permitted by applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER 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 SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and of Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

RESTRICTED USE PESTICIDE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Force 3G must be used only in accordance with recommendations on this label or in separately published Syngenta supplemental labeling recommendations for this product.

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), notification to workers, and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

The REI for this product is zero hours.

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN CROP INJURY, POOR INSECT CONTROL, AND/OR ILLEGAL RESIDUES.

INSTRUCTIONS

Runoff from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Do not apply this product within 20 yards of water (lakes, reservoirs, rivers, permanent streams, marshes, estuaries, natural ponds, or ponds used for commercial fishing).

Cover or incorporate spills (including end row spillage).

Rotational crops may be planted no sooner than 30 days after application.

DIRECTIONS FOR APPLICATION

At-Planting Band Treatment

Apply Force 3G insecticide at planting time for the control of corn rootworms, cutworms, seedcorn maggots, seedcorn beetles, lesser corn stalk borer, white grubs and wireworms. Place the granules in a 7-inch wide band across the open seed furrow between the furrow openers and the press wheels.

GRANULES MUST BE INCORPORATED INTO THE TOP ONE INCH OF SOIL USING TINES, PRESS WHEELS, CLOSING WHEELS OR OTHER SUITABLE EQUIPMENT.

DO NOT apply this product as either a band or T-band treatment, unless you can incorporate the granules as directed above. This will improve insect control and reduce the potential for adverse effects to aquatic organisms.

Highly Erodible Land (HEL)

When used on erodible soils, best management practices for minimizing runoff must be employed. When applying to highly erodible land draining to water bodies, consultation with the Natural Resources Conservation Service (NRCS) and/or other agricultural agencies will ensure that effective efforts are made to minimize soil erosion as well as runoff of herbicides and insecticides. In particular, where highly erodible land (HEL) is adjacent to aquatic bodies, the 20-yard buffer/setback area must be left in grass or other natural vegetation.

For **NO-TILL** corn where runoff drains into adjacent or neighboring aquatic sites (ponds, streams, lakes), apply Force 3G as an in-furrow treatment only. See in-furrow directions below.

At-Planting In-Furrow Treatment

Apply Force 3G at planting time as an in-furrow treatment for control of corn rootworms, wireworms, and seed corn maggots. In-furrow applications may be made by (1) directing the granules into the planter shoe with the seed, or (2) placing the applicator tube directly behind the planter shoe so that the granules drop into the seed furrow.

	Pounds of Force 3G Required Per Acre for Various Row Spacings			
	30”	20”*	15”*	Row Spacing
	17,424 ft.	13,068 ft.	17,424 ft.	Linear Ft/Acre
Ounces per 1000 Ft. of Row				
3 oz.	3.3 lb.	2.5 lb.	3.3 lb.	
4 oz.	4.4 lb.	3.3 lb.	4.4 lb.	
5 oz.	5.5 lb.	4.1 lb.	5.5 lb.	

*Refuge Treated Rows Only. Do not exceed more than 1/2 treated area.

GAUGE SETTINGS FOR FORCE 3G INSECTICIDE APPLICATION

Speed MPH	4			5			6			7			8		
APPLICATION RATE/1,000 Row Feet (oz./1,000 Row Feet)	**3**	**4**	**5**	**3**	**4**	**5**	**3**	**4**	**5**	**3**	**4**	**5**	**3**	**4**	**5**
Applicator															
Kinze	6	8	10	8	10	12	9	11	13	11	13	15	13	14	17
Allis Chalmers (new, with noble metering unit)	*	8	9	*	*	*	*	10	12	*	*	*	*	12	14
Buffalo (10-20-30-40)	*	6	7	*	*	*	*	9	11	*	*	*	*	9	11
Buffalo (fluted-roll feed-revolutions on hexagonal adjusting nut)	*	4 1/4	5 1/2	UNIFORM FLOW AT ALL SPEEDS											
Gandy (snap-on and bolt-on bottom models)	13	15	17	15	17	19	16	19	21	17	20	23	19	22	24
International Harvester (one gauge per hopper; Gate/Dial) - Old	1/4	1/6	1/7	1/6	1/7	1/9	1/7	1/8	2/1	1/8	1/9	2/3	2/0	2/1	2/5
International Harvester (two gauges per hopper; Gate/Dial) - New	1/1	1/2	1/3	1/2	1/3	1/5	1/3	1/4	1/6	1/4	1/5	1/7	1/5	1/6	1/9
John Deere 7200/7300 MaxEmerge®2															
1760 Conservation Planter	11	13	15	13	15	17	14	17	20	16	19	24	17	22	27
John Deere 7000 MaxEmerge (Even) (0-10-20-30-40)	7	9	11	9	11	13	11	12	14	12	14	16	14	15	18
John Deere 7000 MaxEmerge (Odd) (5-15-25-35-45)	7	8	9	8	9	11	10	11	13	12	13	15	13	14	16
John Deere MaxEmerge (adjustable dial 0-79)	11	13	15	13	15	17	14	17	20	16	19	24	17	22	27
John Deere (metal box with 3 range settings and dial; Range/Notch)	1/24	1/25	1/28	1/26	1/28	1/31	1/28	1/30	2/3	1/30	2/3	2/7	1/33	2/5	2/11
Noble/White Planter (rectangular opening) - New	*	6	7	*	*	*	*	7	9	*	*	*	*	9	11
Noble (round opening) - Old	*	8	9	*	*	*	*	11	13	*	*	*	*	14	17
White 5100	6	7	8	7	8	9	8	9	11	9	10	12	10	12	14
White 6100	6	8	10	8	10	12	9	12	14	10	13	16	12	15	17

NOTE: These settings should be used as starting points only. Continually check the amount of Force 3G used against a known length of row or acreage and make further adjustments accordingly. Also, check calibration occasionally to make sure equipment wear, changing conditions, etc., have not caused a change in flow rate.

Force 3G Rates

Time of Application	Insects Controlled	Rate: (oz./1,000 ft. of row)	Application
At Planting	Western Corn Rootworm Northern Corn Rootworm Southern Corn Rootworm Mexican Corn Rootworm Cutworm Seedcorn Maggot Seedcorn Beetle Lesser Cornstalk Borer White Grub[1,2] Wireworm[1,2]	4-5 Banded, T-banded or In-Furrow	**Banded:** Place granules in a 7-inch band directly behind planter shoe in front of or behind the press wheel. **In-Furrow:** Place granules directly in the seed furrow behind the planter shoe.
	Chinch Bug[3] Billbug[3] Red Imported Fire Ant[4]	4-5 Banded, T-banded	
	Cutworm	3-4 Banded or T-banded Only First year corn only	
At cultivation within 30 days of seedling emergence	Mexican Corn Rootworm Northern Corn Rootworm Southern Corn Rootworm Western Corn Rootworm	4-5	Apply Force 3G by placing the granules at the base of the plant on both sides of the row (split boot). Cover the treated bands with 2-3 inches of soil by making the application ahead of cultivation equipment. Apply Force 3G when activity of rootworm larvae is first observed. Make this application within 30 days of seedling emergence. Do Not apply this product unless you can incorporate the granules as directed above. DO NOT FOLLOW A FORCE 3G AT-PLANTING APPLICATION WITH A LAY-BY APPLICATION. USE FORCE 3G ONLY ONCE PER CROP.

[1]Use 5 oz./1,000 ft. of row for heavy infestations

[2]For best wireworm and/or white grub control, apply the granules as an in-furrow treatment

[3]Suppression only

[4]Suppression only for 28 days

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage

Do not store or use in or around the home. Store in original containers only. In case of spill on floor or paved surfaces, sweep up and remove to chemical waste area.

Pesticide Disposal

Waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Handling

Non-refillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling if available or dispose of empty bag in a sanitary landfill, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Force®, the Syngenta logo and the CP FRAME are trademarks of a Syngenta Group Company

MaxEmerge® trademark of Deere and Company.

2010 Syngenta

For non-emergency (e.g., current product information) call
Syngenta Crop Protection at 1-800-334-9481.

Manufactured for:
Syngenta Crop Protection, Inc.
P. O. Box 18300
Greensboro, North Carolina 27419-8300

SCP 1075A-L1G 1009

Additional Resources for 2010 Machine & Equipment Systems Skill Activity

Corn Planting Guide
http://www.extension.iastate.edu/publications/pm1885.pdf

Corn Growth and Management Quick Guide
http://www.ag.ndsu.edu/pubs/plantsci/rowcrops/a1173/a1173w.htm

How does planter speed affect plant spacing?
http://www.agronext.iastate.edu/corn/production/management/planting/planter.html

Field Corn IPM Definitions
http://ipm.osu.edu/element/corn.htm

I.P.M. Field Scouting
http://ohioline.osu.edu/icm-fact/fc-02.html

USDA Regional IPM Centers
http://www.ipmcenters.org/

Southern Region IPM Center
http://www.sripmc.org/?CFID=260038&CFTOKEN=57121439
http://www.sripmc.org/cropprofiles/ListStateCropProfiles.cfm?TypeOrg=state&USDARegion=Southern

North Central IPM Center
http://www.ncipmc.org/about/groups.cfm

Northeastern IPM Center
http://neipmc.org/

Western IPM Center
http://www.wrpmc.ucdavis.edu/

2009 Missouri Pest Management Guide: Corn, Grain Sorghum, Soybean, Winter Wheat
http://extension.missouri.edu/publications/DisplayPub.aspx?P=M171

Evaluation Criteria for Field Corn Crops
http://foodalliance.org/certification/farm-ranch/crop%20tools-criteria/Field%20Corn%20evaluation%20criteria.pdf