Genetic 2021-2022 Proficiency Test

Fill in the Blank

1. Adventitious presence as the _____ or _____presence of another seed variety or genetic material, and/or trait(s) from another variety as a result of natural, mechanical or human means.

2. Lateral Flow Strips are a _____ test.

3. Non-herbicide tolerance traits such as insect resistance are often tested via an immunoassay utilizing either _____ and/or _____ methods.

4. Molecular methods, including SNPs, may be used to test for trait purity for all defined traits including _____ tolerance, _____ resistance, and _____ tolerance.

5. Herbicide tolerance traits can be categorized as _____ modified or _____ occurring.

6. Herbicide concentrations are typically expressed in parts per million (ppm) in lab test applications. Parts per million is _____ and is similar to a _____.

7. The use of check (or control) seed for each sample tested is essential to assure test accuracy and limit laboratory liability. Both _____ and _____ trait check samples should be included.

8. Immunoglobin is another name for _____.

9. Element Specific AP testing could target the _____ and _____ sequences associated with many GMO events.

10. A typical ELISA kit purchased from a vendor contains the plate, _____,_____ and _____.

11. SNPs are powerful genomic markers that assess a lines _____ and _____.

True/False

12. True False Trait testing is regulated by the Federal Seed Act

13. True False The main advantage to herbicide bioassay is cost.

14. True False Lateral Flow Strips can be used to measure both AP and Trait Confirmation.

Genetic 2021-2022 Proficiency Test

Short Answer

15. What four technologies can be used for trait detection?

a

b

c

d

16. What is the difference between Quantitative PCR and Qualitative PCR?

17. Please name two advantages of using Quantitative PCR for trait testing.

18. Name two reasons why Lateral Flow strips are advantageous.

19. Trait impurities are often due to contaminations cause by (name two)

a.

b.

20. What is the differences between Polyclonal Anitbodies and Monoclonal Antibodies?

Genetic 2021-2022 Proficiency Test

21. In an ELISA test what would be three reasons that there is no color present in the wells at the end of the test?

a.

b.

c.

22. Name the three methods used for Herbicide Bioassay tests.

a.

b.

c.

23. Non-Trait Monocot seedling will commonly express what symptoms?

24. In a greenhouse spray test the plant affected by the herbicide show what symptoms?

25. If your negative control shows no sensitivity to herbicide at the end of a test what would be the reason? Please name 3.

a.

b.

c.

26. Name the four nitrogenous bases for deoxyribonucleotide triphosphates.

a

b

c

d

Multiple Choice

27. False positive or negative for lateral flow strips can be caused by?

a. wrong sample buffer
b. Strips submerged too deep in the samples extract
c. A and B
d. None of the above.

28. Edge Effect on ELISA plates is cause by?

a. Stacking of plates.
b. Strong light
c. Cold plates or reagents
d. All of the above.

29. Match the technology on the left with what it detects on the right side.

a. PCR	Protein
b. Bioassay	DNA
c. Immunoassay	Trait

Calculations

30. Use Seedcalc8 to calculate the % contamination and upper bound true % purity in a sample using the information below.

# of seed pools - 30
# of seeds per pool- 1000
# of deviant pools 15
Desired confidence level 95%

_____% contamination _____upper bound true % purity

31. Use Seedcalc8 to calculate the % contamination and lower bound true % purity in a sample using the information below.

# of seed pools- 20
# of seeds per pool- 500
# of deviant pools- 8
Desired confidence level 95%

_____% contamination _____lower bound true % purity

32. Calculate the ppm for the Herbicide Concentration of Roundup Ultra 41%.

Genetic 2021-2022 Proficiency Test

33. In this picture of the 2,4,D Soybeans rate each plant as normal or abnormal and tolerant versus non tolerant.

1. ___normal ____abnormal ____tolerant _____nontolerant
2. ___normal ____abnormal ____tolerant _____nontolerant
3. ___normal ____abnormal ____tolerant _____nontolerant
4. ___normal ____abnormal ____tolerant _____nontolerant
5. ___normal ____abnormal ____tolerant _____nontolerant

Genetic 2021-2022 Proficiency Test

34. In this picture of Liberty Corn rate each plant as normal or abnormal and tolerant versus non tolerant.

1. ___normal ____abnormal ____tolerant _____nontolerant
2. ___normal ____abnormal ____tolerant _____nontolerant
3. ___normal ____abnormal ____tolerant _____nontolerant
4. ___normal ____abnormal ____tolerant _____nontolerant
5. ___normal ____abnormal ____tolerant _____nontolerant

Genetic 2021-2022 Proficiency Test

35. In this picture of Liberty Soybeans rate each plant as normal or abnormal and tolerant versus non tolerant.

1. ___normal ____abnormal ____tolerant _____nontolerant
2. ___normal ____abnormal ____tolerant _____nontolerant
3. ___normal ____abnormal ____tolerant _____nontolerant
4. ___normal ____abnormal ____tolerant _____nontolerant
5. ___normal ____abnormal ____tolerant _____nontolerant

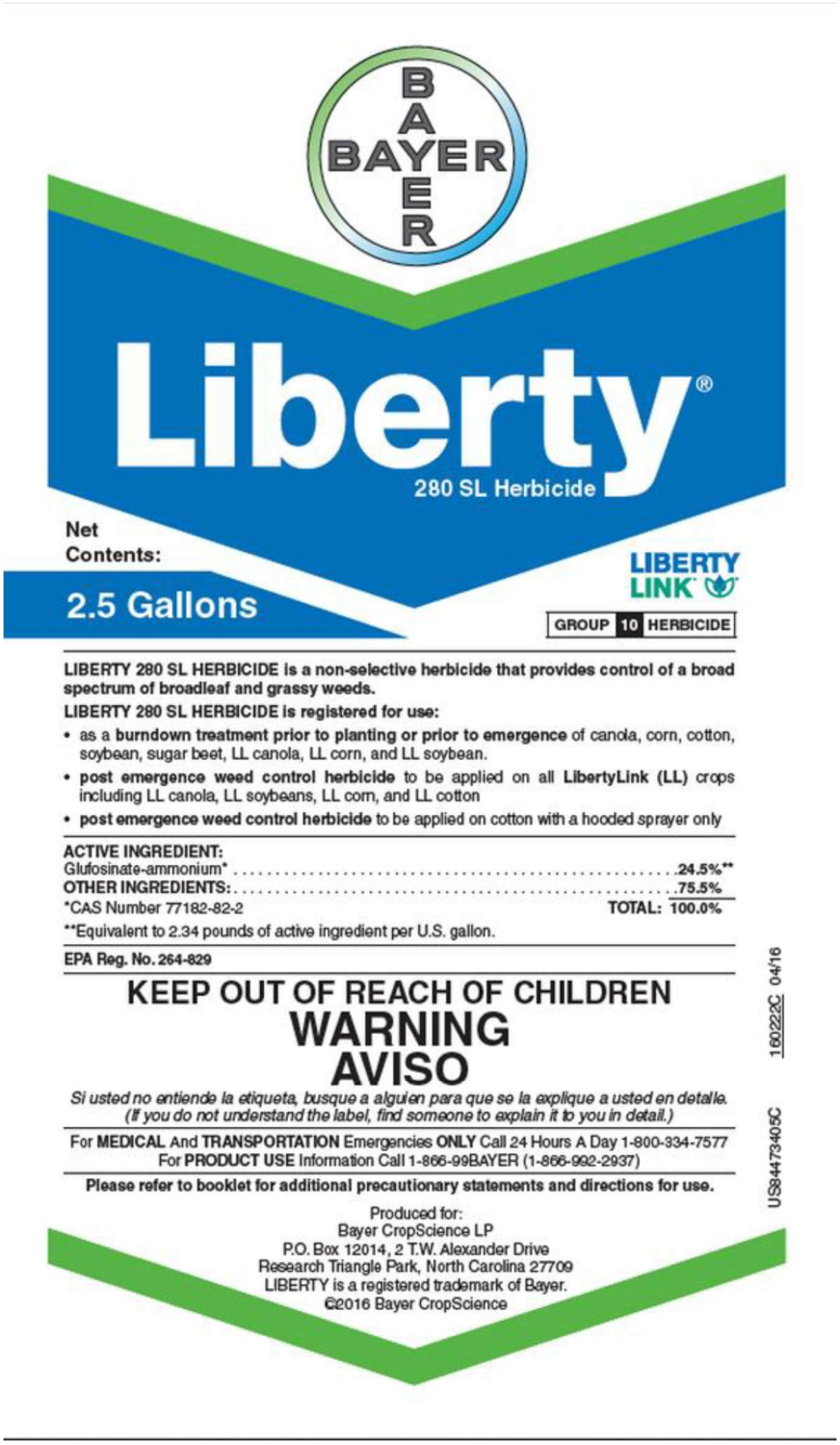
Genetic 2021-2022 Proficiency Test

36. In this picture of Round Up Corn rate each plant as normal or abnormal and tolerant versus non tolerant.

1. ___normal ____abnormal ____tolerant _____nontolerant
2. ___normal ____abnormal ____tolerant _____nontolerant
3. ___normal ____abnormal ____tolerant _____nontolerant
4. ___normal ____abnormal ____tolerant _____nontolerant
5. ___normal ____abnormal ____tolerant _____nontolerant

37. What is the parts per million of the AI on the herbicide listed below?

_____PPM



BAYER

Liberty®

280 SL Herbicide

Net Contents:

2.5 Gallons

LIBERTY LINK®

GROUP 10 HERBICIDE

LIBERTY 280 SL HERBICIDE is a non-selective herbicide that provides control of a broad spectrum of broadleaf and grassy weeds.

LIBERTY 280 SL HERBICIDE is registered for use:

- as a **burndown treatment prior to planting or prior to emergence** of canola, corn, cotton, soybean, sugar beet, LL canola, LL corn, and LL soybean.
- **post emergence weed control herbicide** to be applied on all **LibertyLink (LL)** crops including LL canola, LL soybeans, LL corn, and LL cotton
- **post emergence weed control herbicide** to be applied on cotton with a hooded sprayer only

ACTIVE INGREDIENT:	
Glufosinate-ammonium*	24.5%**
OTHER INGREDIENTS:	75.5%
*CAS Number 77182-82-2	**TOTAL: 100.0%**

**Equivalent to 2.34 pounds of active ingredient per U.S. gallon.

EPA Reg. No. 264-829

KEEP OUT OF REACH OF CHILDREN

WARNING

AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

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)

Please refer to booklet for additional precautionary statements and directions for use.

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Research Triangle Park, North Carolina 27709
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