

***** EXAMINATION *****

NEW TECHNOLOGIES IN BIOFUEL PRODUCTION

1. **In 2004, the amount of fuel ethanol produced was**
 - a) 1.4 billion gallons
 - b) 2.4 billion gallons
 - c) 3.4 billion gallons
 - d) 4.4 billion gallons

2. **In 2004, ethanol represented**
 - a) 10% of the corn crop
 - b) 15% of the corn crop
 - c) 20% of the corn crop
 - d) 25% of the corn crop

3. **Most fuel ethanol is produced by the**
 - a) dry-grind process
 - b) wet-mill process
 - c) catalytic process
 - d) extraction process

4. **In 2004, technology allowed**
 - a) 1.5 gallons of ethanol to be produced by the wet-mill process
 - b) 2.5 gallons of ethanol to be produced by the wet-mill process
 - c) 3.5 gallons of ethanol to be produced by the wet-mill process
 - d) 4.5 gallons of ethanol to be produced by the wet-mill process

5. **Corn hybrids are being developed with**
 - a) lower extractable starch
 - b) higher extractable starch
 - c) lower fermentable starch
 - d) None of the above

6. **Selecting breeding on hybrids**
 - a) is being tested versus transgenic approaches
 - b) is not as preferred as the transgenic approach
 - c) is not being used to increase ethanol production
 - d) None of the above

7. **The highest yielding hybrid samples**
- a) may produce as much as 5% more ethanol
 - b) may produce as much as 15% more ethanol
 - c) may produce as much as 25% more ethanol
 - d) may produce as much as 35% more ethanol
8. **The HTF trait means**
- a) highly traced form
 - b) highly treated facility
 - c) high total fermentables
 - d) None of the above
9. **Types of corn include**
- a) waxy
 - b) inbred
 - c) hybrids
 - d) All of the above
10. **Managing the field for optimum yield**
- a) also maximizes extractable starch
 - b) reduces total fermentables
 - c) reduces the amount of seed planted
 - d) All of the above
11. **High extractable starch hybrids are geared toward**
- a) dry milling
 - b) wet milling
 - c) both a and b
 - d) Neither a nor b
12. **Stable accumulations of enzymes**
- a) harm grain viability
 - b) harm grain composition
 - c) allow built-in processing capability
 - d) All of the above
13. **Hybrids can be made to**
- a) improve gelling properties
 - b) increase viscosity
 - c) stabilize the temperature
 - d) All of the above
14. **Besides optimizing ethanol production,**
- a) optimizing coproducts is important
 - b) optimizing coproducts is unimportant
 - c) optimizing coproducts is not cost efficient
 - d) None of the above

15. **Process modifications allow cost effective removal of**
- a) corn oil
 - b) zein
 - c) germ and pericap fiber
 - d) All of the above
16. **Biorefining can produce**
- a) corn fiber oil
 - b) sweeteners
 - c) fibers
 - d) All of the above
17. **Future research of DDGS will modify**
- a) amino acid composition
 - b) protein composition
 - c) phosphorous content
 - d) All of the above
18. **The no-cook process benefits include**
- a) reduced capital and energy
 - b) reduced raw material
 - c) reduced water and waste costs
 - d) All of the above
19. **A substitute for starch as an ethanol source is**
- a) propane
 - b) lignocellulosics
 - c) ethane
 - d) Any of the above
20. **Conversion of lignocellulose to ethanol is constrained by**
- a) pretreatment of the substrate
 - b) treatment of the protein
 - c) treatment of the fiber
 - d) All of the above

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