

Bio 3

## Biotech: Altering Ag Products

11-13-12

- > More nutritious
- > San Joaquin Valley Farmers
  - dealing w/ climate chg
    - hotter/drier
    - resistant to droughts + sunburn
- > Golden Rice = white rice + daffodil gene
  - produces more beta-carotene
    - becomes Vit A
- > Common genetically modified crops in U.S.
  - 45% Corn    76% Cotton    85% Soy beans

### > Resistance to Insects

- Pesticide use is reduced w/ g. modification
- > Bt crystals: *Bacillus thuringiensis*
  - toxic to insects; destroys their digestive sys.
  - used

### > Herbicide-resistant genes

- used to resist pesticides used to kill weeds

### > Faster / Bigger / Growth

- > Genetically modified animals
  - unintended consequences

} Reduces cost  
of food

> GMD (Genetically Modified Organisms) Fears

1. organisms we want to kill may become invincible
2. organisms we don't want to kill may die inadvertently
3. genetically modified organisms  $\neq$  tested adequately
4. eating gen-mod food = dangerous
5. loss of gen diversity among crops = risky
6. hidden costs may reduce financial advantages of gen-mod crops.

Lab

Vocabulary

DNA: A A Homozygous Dominant (capital)  
a a Homozygous Recessive (lower case)  
A a Heterozygous

- > 50/50 chance of gene copies from parents
- > Homozygous: two of the same  $\rightarrow$  zygotes (e.g. AA or bb)
- > Heterozygous: two distinct (e.g. Aa or Bb)
- > Homogeneous: 2 of the same  $\rightarrow$  genes
- > Heterogeneous: 2 distinct