Tell Your Story: It’s in your DNA

Ronda Hamm, PhD, Global Academic Relations Manager
Getting To Know Ronda

Family:
- Ryan – Husband
- Brandy – Dog

Favorite Food:
- Mexican
- Ice cream

Favorite TV Series:
- Bones, CSI, Elementary

Favorite Book:
- The Count of Monte Cristo

Countries Visited:
- Australia
- Canada
- Mexico
- Ireland
- England
- Scotland
- Brazil

Education:
- BS Agricultural Education from Fresno State
- MS & PhD Entomology from Cornell University

Hobbies:
- Photography
- Hiking/ Travel
- Swing Dancing
- Loves animals of all kinds & have owned a variety of large & small creatures
Our Purpose

To enrich the lives of those who produce and those who consume, ensuring progress for generations to come.
Why talk about DNA?

84% OF PEOPLE SURVEYED WANT LABELING FOR FOODS CONTAINING GM INGREDIENTS

80% OF PEOPLE SURVEYED WANT LABELING FOR FOODS CONTAINING DNA
Support or oppose government policies

80% WANT MANDATORY LABELS ON FOODS CONTAINING DNA

82% WANT MANDATORY LABELS ON FOODS PRODUCED WITH GENETIC ENGINEERING
Activities Today

1. DNA Wristbands
   • Phenotypes

2. DNA Extraction
   • Genotypes
DNA Wristbands

Directions:
1. Pick out a pipecleaner
2. Make a loop in one end
3. Choose one bead to represent each trait you have
4. If you’d like to talk about genetics and environment you can have participants choose one bead of any color to represent them
5. Once you have all your beads on the pipecleaner, put the wristband on by placing the end through the loop and bending it around to stay in place.
6. Additional talking points can be to group participants to see what traits are likely dominate versus recessive in the population.

You’ve just created YOUR phenotype!
DNA Extraction

1. Make the extraction solution (buffer). This has been done in advance.
2. Give each participant one zip top bag with a 1/4 - 1/2 piece of strawberry.
3. Mash the strawberry in the zip top bag.
4. Add 10 mL extraction solution.
5. Mash again.
6. Fold a coffee filter in ½ and then in ½ again.
7. Place a folded coffee filter into a new zip top bag and filter the mashed strawberry into the new bag. Remind the students not to pour it through the center where it will all run through. If this happens just refilter in a new bag.
8. Add 10 mL ice-cold rubbing alcohol. It is important that it is on ice.
9. Zip the bag and rock back and forth gently until the mixture is homogenous and DNA is visible.
10. Optional: If you want to allow students to take the DNA home with them, use the pipette to remove DNA and some alcohol mixture and place into an eppendorf tube.
GMO Crops

**GENETIC TRAITS EXRESSED IN GMOs IN THE U.S.**

**APPLE**
- Genetic Traits: Non-browning
- Uses: Food

**POTATO**
- Genetic Traits: Reduced Bruising and Black Spot, Non-browning, Low Acrylamide, Blight Resistance
- Uses: Food

**FIELD CORN**
- Genetic Traits: Insect Resistance, Herbicide Tolerance, Drought Tolerance
- Uses: Livestock and poultry feed, Fuel ethanol, High-fructose corn syrup and other sweeteners, Corn oil, Starch, Cereal and other food ingredients, Alcohol, Industrial uses

**SOYBEAN**
- Genetic Traits: Insect Resistance, Herbicide Tolerance
- Uses: Livestock and poultry feed, Aquaculture, Soybean oil (vegetable oil), High oleic acid (monounsaturated fatty acid), Biodiesel fuel, Soy milk, soy sauce, tofu, other food uses, Lecithin, Pet food, Adhesives and building materials, Printing ink, Other industrial uses

**COTTON**
- Genetic Traits: Insect Resistance, Herbicide Tolerance
- Uses: Fiber, Animal feed, Cottonseed oil

**SUGAR BEET**
- Genetic Traits: Herbicide Tolerance
- Uses: Sugar, Animal feed

**SWEET CORN**
- Genetic Traits: Insect Resistance, Herbicide Tolerance
- Uses: Food

**RAINFOREST PAPAYA**
- Genetic Traits: Disease Resistance
- Uses: Table fruit

**RAINBOW BANANA**
- Genetic Traits: Disease Resistance
- Uses: Table fruit

**SUMMER SQUASH**
- Genetic Traits: Disease Resistance
- Uses: Food
How will you tell your DNA story?

We want to hear from you! Please share your photos and thoughts with us on social media.

We look forward to connecting: @CortevaUS, #CortevaGrows, #ScienceAmbassadors

Find us on any of these Social Media channels
Agriculture of Tomorrow Starts Today... With You

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