

STUDENT WORKSHEET

NEW PLANT VARIETY SAFETY EVALUATION PROCESS

Name _____ Date _____ Class/Hour _____

There are dozens of potato varieties that are grown in the United States. Your research team will genetically engineer a new potato variety from a host plant, the Yukon Gold potato.

Your project is to alter a trait that reduces susceptibility to one of the following three conditions:

- bruising blight insect damage (Choose one)

You are making a genetically engineered new variety. Decide how you want to alter the DNA.

- Will you insert a transgene (a gene from another organism) or use genome editing?

Research your "host" potato variety using the internet (refer to the Credible Source Guide). First, look at Organisation for Economic Cooperation and Development) Potato composition document (pages 15 - 21) <https://www.oecd.org/env/ehs/biotrack/46815167.pdf>. The National Agricultural Library has many good sources, including FoodData Central <https://fdc.nal.usda.gov/>. Search for a specific potato, e.g., Yukon Gold, or you will get too much information. Complete the table below and record your sources.

Use the Safety Evaluation Process flow chart as a guide to determine if your new potato variety is "as safe and nutritious as comparable food" or if "additional information is needed." Your variety is hypothetical, so you have not actually tested its final composition in a laboratory. As you consider the flow chart questions (blue diamonds), you might not have enough information about your new variety to answer "yes" or "no." Choose a hypothetical answer to describe your variety, and circle the "yes" or "no" answer.

Potato Composition (% fresh weight, %FW)	A. Host Plant (Yukon Gold Potato)	B. New DNA (inserted or altered)	C. New Potato Variety	Credible Sources for A. and B. Data
Nutrient composition (starch, protein, fat, Vitamin C, potassium, etc.)				
Naturally-occurring toxins				
Naturally-occurring anti-nutrients				
Naturally-occurring allergen(s), if any				

Would you expect amino acids or proteins created through the change in DNA be present in the new potato? _____

Is your new potato variety... "as safe and nutritious as comparable food" or "additional information is needed" (select one).

Explain your decision. _____
