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FOOD SAFETY FOR FOOD CROP PRODUCERS

AFTER FLOODING

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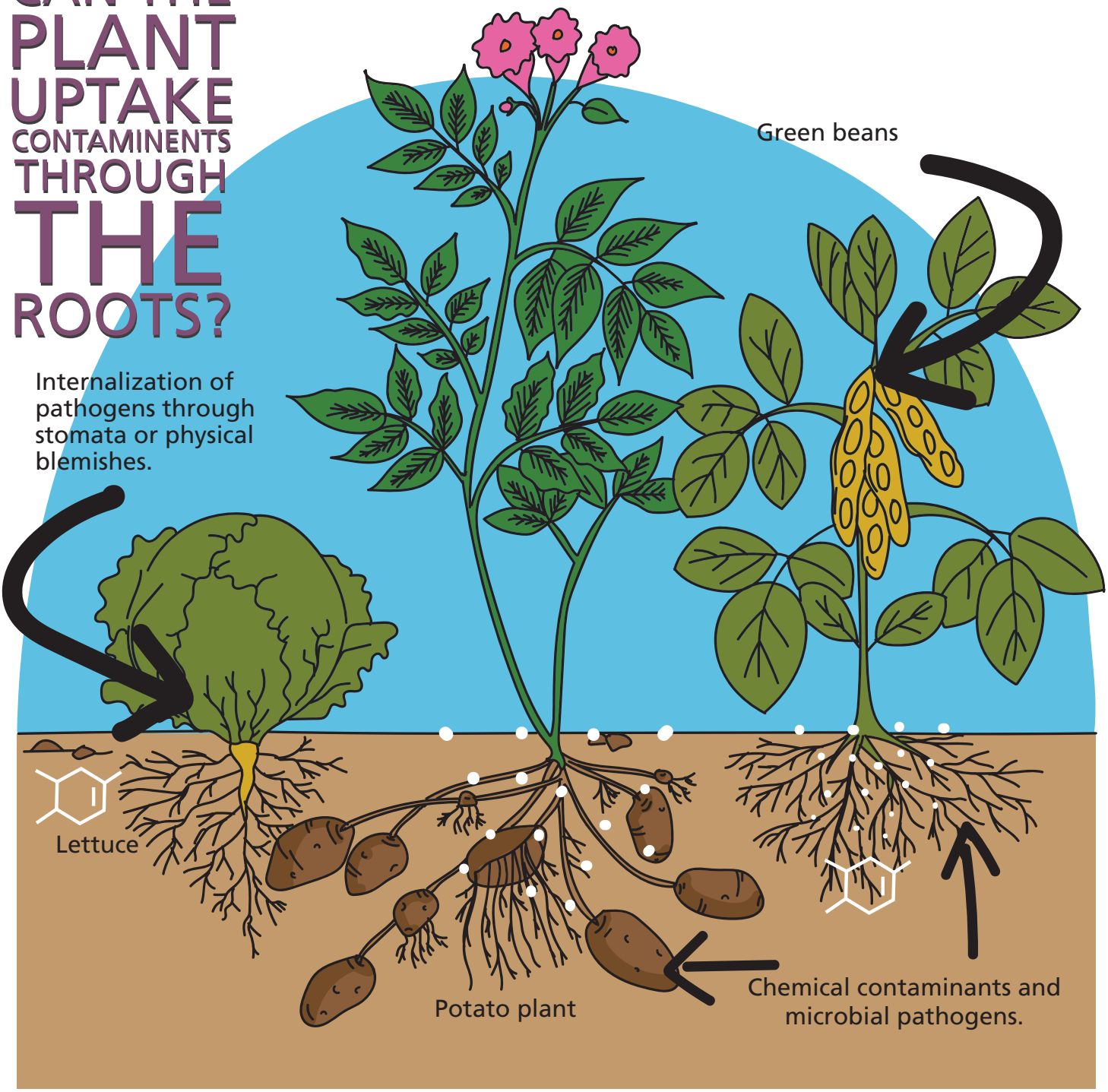
Flooding is considered the flowing or overflowing of a field from open bodies of water outside a food crop producer's control. Flood events can pose significant public health risk. Floodwaters may contain any number of different unknown hazards.

Even if a crop is not completely submerged, there is potential for contamination. It is important to consider all types of potential contaminants, including sewage; chemical hazards, such as heavy metals and toxic agrochemicals; or biological hazards, such as bacterial pathogens, parasites and viruses.

CAN THE PLANT UPTAKE CONTAMINENTS THROUGH THE ROOTS?



CHEMICAL CONTAMINANTS

Some studies on the variability in uptake among vegetable types show that leafy greens have the greatest potential to accumulate heavy metals, followed by root vegetables and legumes. Request a chemical assessment of the soil to determine its potential for chemical uptake.

MICROBIAL PATHOGENS

Some studies indicate that internalization of pathogens, such as E.coli O157:H7, is possible in spinach and lettuce leaves through stomata or physical blemishes on the plant. Studies are insufficient to indicate whether human pathogenic bacteria could contaminate the harvestable portion of a crop by being taken up by the plant through the roots.

WHAT CAN BE DONE WITH PRODUCTS THAT HAVE BEEN DAMAGED, BUT NOT EXPOSED TO FLOODWATERS?

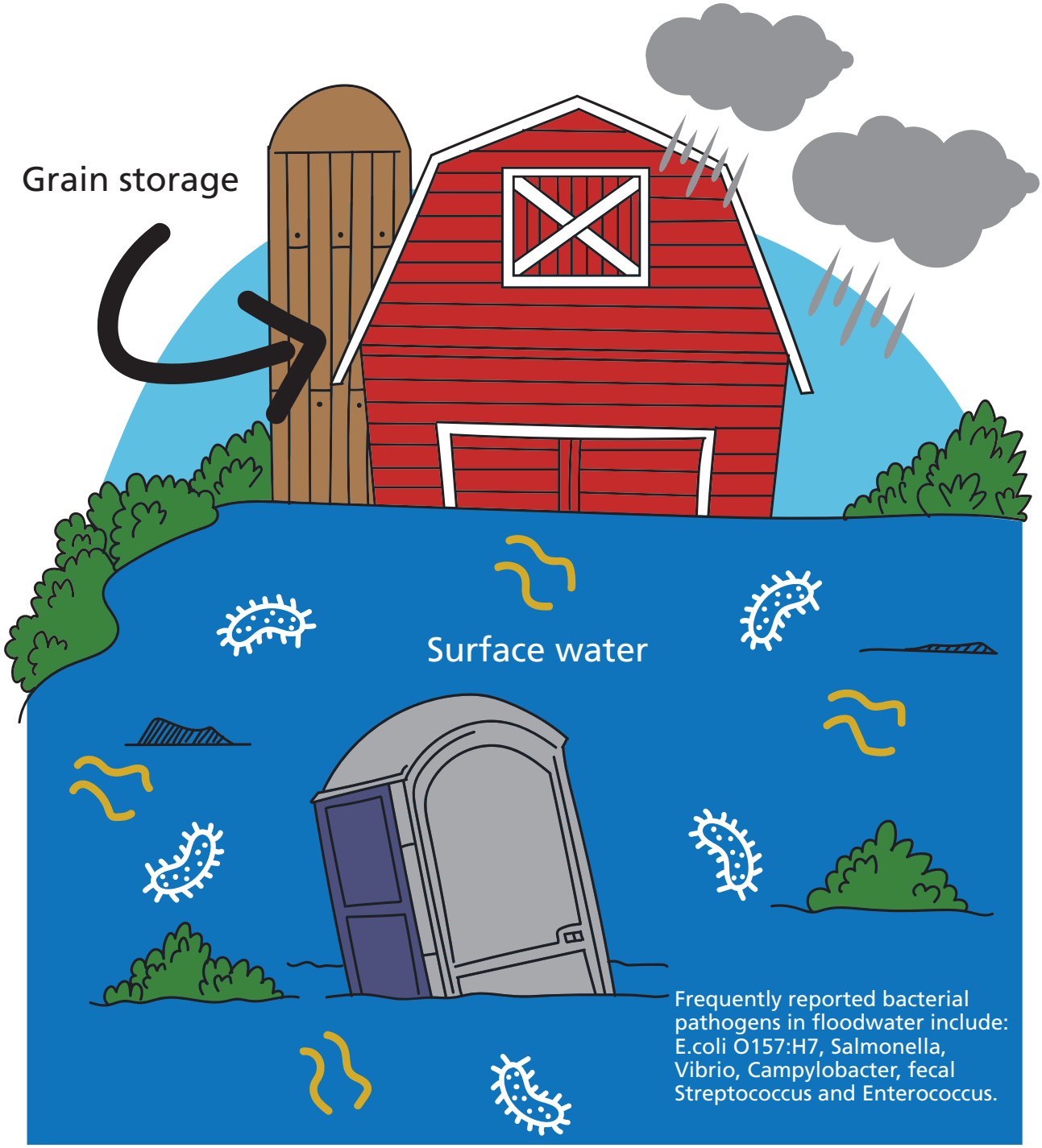
In the case where a flood is imminent, certain crops can be harvested early and delivered to an alternative market. Having a secondary market established can save some time and money during an emergency. Factors to consider:

- Identifying potential processors that are not in the same geographic area as the farm because operations close by may be damaged or without power.
- Pickling plants, especially those supplying specialty markets, may be interested in premature fruits and vegetables, such as green strawberries and tomatoes.
- Processors, in particular jam and jelly processors, may be interested in premature or damaged fruits.

The definition of adulterated means to make something poorer in quality by adding another substance, typically of inferior quality. The official definition by the FDA in the context of flooding is "it bears or contains any poisonous or prejudicial substance which may render it injurious to health ...".

WHAT SHOULD BE DONE WITH CROPS CONTAMINATED BY FLOODWATERS?

Crops exposed to floodwaters are considered adulterated. The U.S. Food and Drug Administration (FDA) recommend that these crops be disposed of in a manner that ensures they are kept separate from crops that have not been flood damaged to avoid adulterating clean crops. There could be health implications or legal issues if a person consumes the product or feeds it to livestock, so it must be disposed of in a way that ensures that it will not enter the food chain.



CAN GRAIN FROM A FLOODED BIN BE SALVAGED?

If a grain bin is flooded, it may be possible to salvage portions above the immersed grain. To prevent cross-contamination, salvageable grain must be removed from the top or side, not down through the contaminated grain.

Aeration fans could spread mold or other contamination. The FDA allows for reconditioning in cases where the floodwaters did not remain long and in the rare situation where it is known that the water did not contain contaminants.

WHAT TYPES OF MICROBIAL CONTAMINATION COULD BE IN SURFACE WATER?

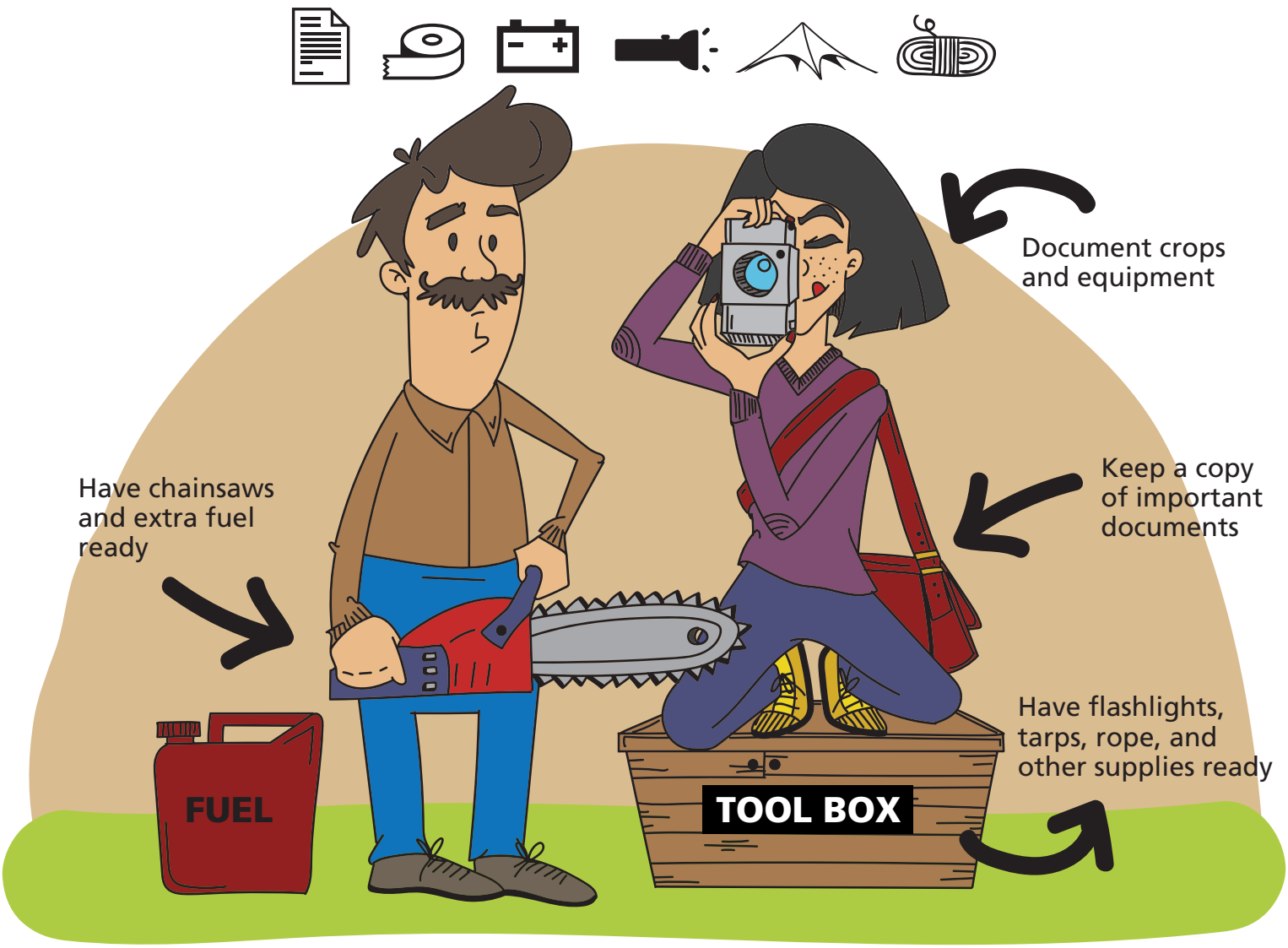
The types and concentrations of microbial pathogens in floodwaters are dependent on factors such as human and animal activities in the flood area and the source of contaminants.

After flooding, assessment of the microbial and chemical quality of surface water is necessary before using the water for agricultural purposes. The use of contaminated water for irrigation and other pre-harvest activities will increase the risk of microbial and chemical contamination.

WHAT CAN BE DONE TO PREPARE AND MINIMIZE IMPACTS ON THE FARM?

Producers staying on the farm during a storm will need to make sure they have enough supplies for themselves as well livestock.

- Test chainsaws ahead of the storm, fill them with fuel and have extra fuel ready.
- Prepare wells and other water sources for potential flooding. Have batteries and flashlights ready.
- Have tarps, rope and duct tape on hand.
- Know exactly where gas, electrical and water cutoffs are. In some cases, emergency personnel may ask for utilities to be turned off ahead of a storm to prevent explosions, electrocutions and contamination to the water supply.
- Take photos to document crops and equipment before storm.
- Keep a copy of important documents off-site or in cloud storage. This information will be essential for filling an insurance claim or applying for federal assistance.



REASON NUMBER 1 TO HANDLE YOUR CROP SAFELY AFTER FLOODING

IT MAY SAVE A LIFE!

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