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Sysco SUSTAINABLE/INTEGRATED PEST MANAGEMENT INITIATIVE

**Improving Stewardship in
Canned and Frozen Fruit and Vegetable Production**

Environmental Indicator Report FAQ and Resources v9.4

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Frequently Asked Questions

1. How can I calculate pounds of **active ingredient in pesticides** for questions 8-14?
 - a. Pounds of active ingredient are indicated on the product label. For liquid pesticides this will be as a ratio (lbs./gal.), for granular this will be as a percentage. Use the appropriate examples below for assistance.

Liquid pesticide example: The label lists the active ingredient content as 2 lbs./gal and 30 gallons of pesticide were applied, 60 lbs. ($2 \times 30 \text{ gal.} = 60$) of active ingredient was applied.

Granular pesticide example: A pesticide product contains 20% active ingredient by weight and 300 lbs. of pesticide were applied to the crop in a year, 60 lbs. ($300 \times 0.20 = 60$) of pesticide active ingredient is the reportable number. Percent active ingredient for US-EPA registered pesticides can also be found at <http://ppis.ceris.purdue.edu/> by searching by product name or EPA registration number.

Additionally, for US EPA-registered pesticides, you can use www.pesticiderisk.org to calculate the amount of active ingredient used per acre by selecting your pesticide formulation and entering your application rate per acre. Once this has been entered, a table will be created. The column titled 'Active Ingredient(s) App Rate' will show the active ingredient and lbs./acre.

2. What are the **IPM strategies** listed in question 14?
 - a. Brief definitions of each strategy are as follows:
 - i. **Beneficial organism conserved:** Organisms that provide benefit crop production may already be present in a farm ecosystem, such as predatory mites. Conserving these can include avoiding pesticides that are toxic to them, or providing food, water or shelter such as installing bat houses or owl boxes.
 - ii. **Beneficial organism released:** Beneficial organisms in agriculture are those that provide a benefit to crop production, for example, natural enemies of pests such as predatory beetles that feed on aphids that can damage crops, or parasitic wasps that deposit eggs in caterpillars that feed on crops, eventually killing the caterpillars. Releasing beneficial organisms refers to adding live organisms to the area where the crop is grown. Beneficials that are often added include lacewings, lady beetles or predatory mites.
 - iii. **Crop rotation** is the intentional planting of specific crop sequences to improve crop health including avoiding pests. For example, avoiding planting potatoes in the same fields two years in a row can reduce problems due to Colorado potato beetle.
 - iv. **Pheromone mating disruption** refers to releasing synthesized insect sex pheromones to disrupt pest reproductive cycles. For example, placing small plastic tubes containing a synthetic version of the attractant codling moth females use to attract males can help control these pests in apple orchards. Sufficient pheromone is released such that males cannot locate females for mating.
 - v. **Scouting and thresholds:** Scouting is the process of collecting information about pests, pest-friendly conditions and other information

about crops and growing conditions. Scouting is typically done by a trained individual using tools such as magnifiers, sweep nets, insect traps and/or paper forms or electronic devices and software to record data. A threshold is a level of pests, symptoms or weather parameters which suggests that action is needed to prevent economic loss. For example, apple scab is a disease of apples that requires a specific number of hours that apple leaves need to be wet in order for disease to occur. The number of hours depends on the temperature during the period the leaves are wet.

- vi. **Trap cropping:** Growing plants that attract agricultural pests in order to divert them from nearby crops. For example, sunflowers may be planted around a crop field to attract brown marmorated stink bug. The sunflowers can be sprayed or destroyed to reduce stink bug populations.
 - vii. **Trapping:** Using devices to capture insects or disease spores. Traps can be used to monitor pest populations to determine if a threshold has been reached and/or to reduce pest populations.
 - viii. **Weather monitoring:** Tracking short-term data such as humidity, precipitation and temperature to help predict when action is needed to reduce crop loss.
3. How do I calculate units of **pesticide not applied** for question 14?
- a. Create a hypothetical “cover” scenario where you do not use any IPM, i.e., you are not scouting or using monitoring traps, applying thresholds or monitoring weather conditions conducive to pest problems. Without any IPM tactics, you will have little to no information about insect pest, disease or weed pressure other than past experience. Thus blindfolded, you would have needed keep your crop “covered” with insecticides, fungicides and herbicides to anticipate any potential threat, rather than applying based on current information on pressure.

Compare your actual use vs. the cover scenario. How much were you able to reduce use through each of the different categories of IPM tactics? By monitoring weather conditions, were you able to eliminate applications during periods when weather was not conducive to insect or disease pests? By scouting or insect trapping, were you able to eliminate insecticides you might otherwise have applied?

4. How can I calculate units of **synthetic nutrients and manure/compost not applied** for the year?
- a. Similar to pesticides avoided, create a hypothetical scenario where you lack information from soil tests, foliar analysis or nutrient management planning. How many total units (e.g., pounds) of nutrient material (N, P or K) would you apply in a year to ensure adequate fertility? Compare these numbers to what you actually applied to calculate fertilizer use you avoided by using each strategy listed.
5. Why is Sysco interested in **annual returns** on sustainability investments in question 26?
- a. Economic sustainability is a key component of leaving the world to succeeding generations in better shape. Businesses need to be successful financially to survive. Accurate information on the annual economic returns of initiatives you undertake to address environmental, health or social concerns completes the picture and provides us with an opportunity to share successes and challenges

with our supplier community, customers and shareholders in our annual reporting.

6. Do **sustainability initiatives need to show a positive annual return on investment to be considered successful**?
 - a. Initiatives can have a positive direct net economic return, e.g., if I reduce pesticide use by monitoring weather conditions, I may save enough on my pesticide bill to cover the cost of weather monitoring and have some savings left over. However, not all initiatives will return a direct economic benefit, and some economic costs may be difficult to measure. For example, by using nutrient management techniques including foliar analysis, I may find the cost of the sampling is not covered by nitrogen fertilizer savings. However, by applying only what I need, I reduce runoff into an adjacent stream, which reduces the amount of treatment the local reservoir water needs to remove excess nitrates. Reducing those costs helps lower the costs of operating the wastewater treatment, reducing my fees and taxes both at work and at home.
7. What is an **annual amortized start-up cost** referred to in question 26?
 - a. An amortized start-up cost is the total initial cost to implement an initiative divided by the number of years the investment is expected to generate returns, e.g., the purchase and installation costs for solar panels spread over the life of the panels.
8. How should **annual returns be calculated** for sustainability initiatives?
 - a. Annual returns are calculated by estimating revenue generation, e.g., any savings in electric bill resulting from the solar panel installation, and subtracting the annual operating costs such as maintenance plus a portion of the initial start-up costs, i.e., amortized start-up cost for the year.
9. How can annual returns for **materials recycling and reuse** be measured?
 - a. For recycling, annual returns can be calculated by estimating annual revenue from avoiding disposal fees, adding any revenue earned from payments to you for the recyclables, and then subtracting any costs associated with recycling such as storage, shipping or pick-up fees. For reuse, annual returns can include savings created by not purchasing new materials, such as fertilizers replaced by returning vegetative materials to the field, or the cost of fresh water if processing water is reused, minus any costs associated with applying the vegetative material to fields or treating water to be recycled.
10. How many initiatives and costs can we report on in question 26?
 - a. Multiple initiatives and costs can be reported, but to help ensure accuracy, please report only those initiatives for which you formally track costs and returns.
11. Who fills out the section on Potato Sustainability (PSI) Audit Results (questions 31-33)?
 - a. Only potato suppliers with sub-suppliers (growers) that participate in this initiative are required to fill out this section. PSI is a collaboration of potato buyers, processors and growers aiming to improve sustainability in the potato supply chain across the US and Canada. Those sub-suppliers complete a self-assessment and third-party audit, which has been benchmarked to the Sysco program. Their suppliers report those audit results in lieu of conducting a second audit of their sub-suppliers through Sysco.

12. My sub-suppliers participate in PSI, but none that supply to this facility were audited during the year we are reporting for the EIR. What do I enter on the PSI audit results section?
- a. In this case, you would enter 0% on question 31 and select “N/A” for questions 32-33.

Resources

1. “Farm Energy Log” (Iowa State University Extension)
 - <https://store.extension.iastate.edu/Product/Tracking-the-Energy-Use-on-Your-Farm-Farm-Energy>
2. “Estimating Payback for Energy Efficiency:
 - <http://farmenergy.exnet.iastate.edu/wp-content/uploads/downloads/2011/11/PM-2089S.pdf>
3. “Energy Self Assessment” (USDA NRCS):
 - <http://www.ruralenergy.wisc.edu/>
4. “Energy Estimator” (USDA NRCS):
 - <http://ecat.sc.egov.usda.gov/>
5. “The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures” (NREL):
 - <http://www.nrel.gov/docs/fy13osti/53827.pdf>
6. “Energy Efficiency Program Impact Evaluation Guide” (SEEACTION):
 - https://www4.eere.energy.gov/seeaction/system/files/documents/emv_ee_program_impact_guide_0.pdf
7. “How to Conserve Water and Use It Effectively” (EPA):
 - <http://www.epa.gov/owow/nps/nps- conserve.html>
8. “Worksheet for Estimating Agricultural Withdrawals” (NY State DEC)
 - http://www.dec.ny.gov/docs/water_pdf/agestimate.pdf
9. “Fertilizer Calculator” (UGA Extension)
 - <http://aesl.ces.uga.edu/soil/fertcalc/>