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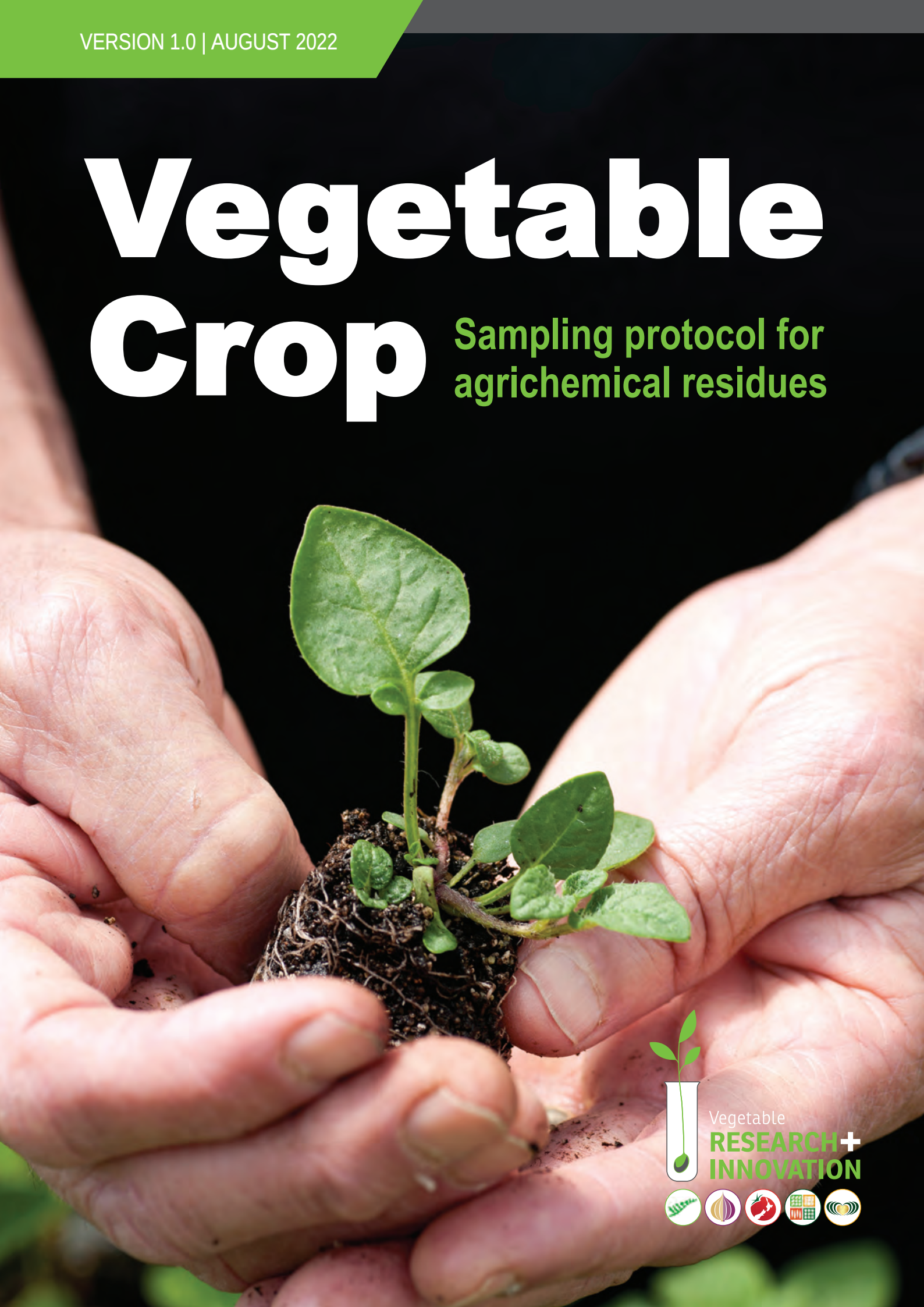
Vegetable Crop

Sampling protocol for agrichemical residues



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Vegetable Crop

Sampling protocol for agrichemical residues

1. Equipment needed

- ☐ Disposable gloves
- ☐ Clean plastic bags (capable of holding minimum 2 kg)
- ☐ Cable ties
- ☐ Clean knife
- ☐ Secateurs or scissors
- ☐ Permanent marker pen
- ☐ Access to scales that can weigh 2 kg
- ☐ Access to clean running cold water
- ☐ Paper towels (to use post rinsing)

2. Sampling procedures

Using disposable gloves, samples should be collected that are representative of a harvestable portion of the crop. Sample quantities for vegetable crops are described in the reference tables in this document. Decayed leaves and roots should be trimmed. Samples should be collected from multiple sites in the crop (typically 12). Sampling locations should be at least 10m apart and a representative sample of the paddock, this can be achieved by sampling across a paddock in a 'W' pattern. Adhering soil may need to be removed using light brushing and if necessary, gentle rinsing with cold water.

DO NOT:

- Collect samples from within 10m of the ends of rows/beds
- Collect samples that are damaged, diseased, decayed, or undersized

3. Contamination

It is vital to avoid any contamination.

Special attention should be given to the following:

- Ensure sampling tools and bags are clean and not stored near any pesticides. Use new bags or containers that are of suitable size and strength.
- Avoid contamination of the sample by hands or clothes that may have been in contact with pesticides (disposable gloves preferred).
- Do not allow samples to come into contact with containers or equipment (including vehicles) that have been used to transport or store pesticides.
- Equipment that will come into direct contact with samples, such as secateurs or scissors, should be cleaned prior to sample collection.
- If multiple samples are being collected, equipment should be cleaned between samplings.

4. Packaging samples

Place the required number of sample units into a clean plastic bag. If water has been used to remove soil, dry samples by dabbing with paper towels. Air dry the samples thoroughly before putting them into a plastic bag. Ensure the minimum weight required has been reached (see following tables). Use a cable tie to secure the bag. Label the bag with permanent marker, recording date, crop and a sample number for later identification (1,2,3 …). Place the bag inside another plastic bag and secure.

5. Sample shipment

Determine the required laboratory test for the agrichemical or select the appropriate multi-residue screen. Complete the laboratory submission form, recording the label details written on the plastic bag(s).

Place sample and form into either a bubble wrap bag or carton to prevent damage to the sample. Courier directly to the laboratory as soon as possible. Long-term storage of samples is not advised.

6. Determining residue results

Unless the maximum residue limit (MRL) for the agrichemicals being tested is known, seek professional advice to determine whether the produce submitted is compliant for sale. For off-label use, the MRL should not exceed 0.1 mg/kg unless a lower MRL has been established by MPI.

If it is non-compliant, conduct another sampling and get analysed.

Bulb, root and tuber vegetables

Sampling

COMMODITY	QUANTITY AND METHOD	SPECIAL TREATMENT
Fodder beet, sugar beet	12 plants.	Brush off or rinse adhering soil.
Potato, kumara, yam	12 tubers collected from 12 plants weighing not less than 2 kg.	Where necessary, take a larger number to produce 2 kg. Brush off or rinse adhering soil.
Carrots, red beet, celeriac, turnip, swede, parsnip, horseradish, salsify, chicory, radish, taro	12 roots collected from 12 locations weighing not less than 2 kg.	Where necessary, take a larger number to produce 2 kg. Brush off or rinse adhering soil.
Bulb onion, leeks	12 plants collected from 12 locations weighing not less than 2 kg.	Where necessary, take a larger number to produce 2 kg. Brush off or rinse adhering soil. Trim off tops and roots.
Spring onions	24 plants collected from 24 locations weighing not less than 2 kg.	Where necessary, take a larger number to produce 2 kg. Brush off or rinse adhering soil.
Garlic, shallots	12 bulbs collected from 12 locations weighing not less than 2 kg.	Where necessary, take a larger number to produce 2 kg. Brush off or rinse adhering soil.

Other vegetables

Sampling

COMMODITY	QUANTITY AND METHOD	SPECIAL TREATMENT
Cabbage, cauliflower	12 plants.	Trim to match marketable portion.
Broccoli, okra	1 kg from 12 plants.	Trim to match marketable portion.
Brussels sprouts	1 kg from 12 plants.	Collect buttons from at least two levels on each plant.
Cucumbers	12 fruit from 12 separate plants.	
Gherkins, courgettes, squash	12 fruit from 12 plants weighing not less than 2 kg.	Where necessary, take a larger number to produce 2 kg.
Melons, gourds, pumpkins, watermelons, buttercup squash	12 fruit from 12 plants weighing not less than 2 kg.	For larger fruit, cut into quarters and select one quarter. Ensure 12 quarters weighs 2 kg.
Egg plants	12 fruit from 12 separate plants.	
Sweet corn	12 cobs from 12 separate plants weighing not less than 2 kg.	Where necessary, take a larger number to produce 2 kg.
Mushrooms	12 items weighing not less than 0.5 kg.	Where necessary, take a larger number to produce 0.5 kg.

Other vegetables continued

Sampling

COMMODITY	QUANTITY AND METHOD	SPECIAL TREATMENT
Tomatoes, peppers, capsicums	24 fruits from small-fruiting varieties. 12 fruit from large fruiting varieties.	Where necessary, take a larger number to produce 2 kg.
Endive	12 plants.	
Lettuce – head and leaf	12 plants.	Trim to match marketable portion.
Spinach, chicory leaves	1 kg from 12 plants.	
Kale, collards	2 kg from 12 plants.	Collect from at least two levels on each plant.
Small-leaf salad – baby leaf, cress	0.5 kg from 12 plants or sites in the crop.	
Celery	12 plants.	
Asparagus, rhubarb	12 sticks from 12 plants weighing not less than 2 kg.	Where necessary, take a larger number to produce 2 kg.
Globe artichoke	12 heads.	
Peas, beans (fresh)	1 kg.	Fresh green or dry seed as appropriate.
Pulses – dried broad beans, field beans, lentils, soya beans	1 kg.	

Herbs and spices

Sampling

COMMODITY	QUANTITY AND METHOD	SPECIAL TREATMENT
Garden herbs and medicinal plants eg parsley, thyme, chives, coriander	0.5 kg from 12 plants or sites.	

Resources

Hill Laboratories residue tests
https://www.hill-laboratories.com/analytical-testing/food-testing/pesticide-testing/

Eurofins residue tests
https://www.eurofins.co.nz/environment-testing/environment-testing-services/pesticides-residue-testing/

AssureQuality residue tests
https://www.asurequality.com/services/laboratory-testing/residue-testing/

Maximum residue limits for NZ foods
https://www.mpi.govt.nz/dmsdocument/19550-Maximum-Residue-Levels-for-Agricultural-Compounds

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