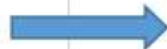

















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Fertilizer Registrations: Act 36 of 1947

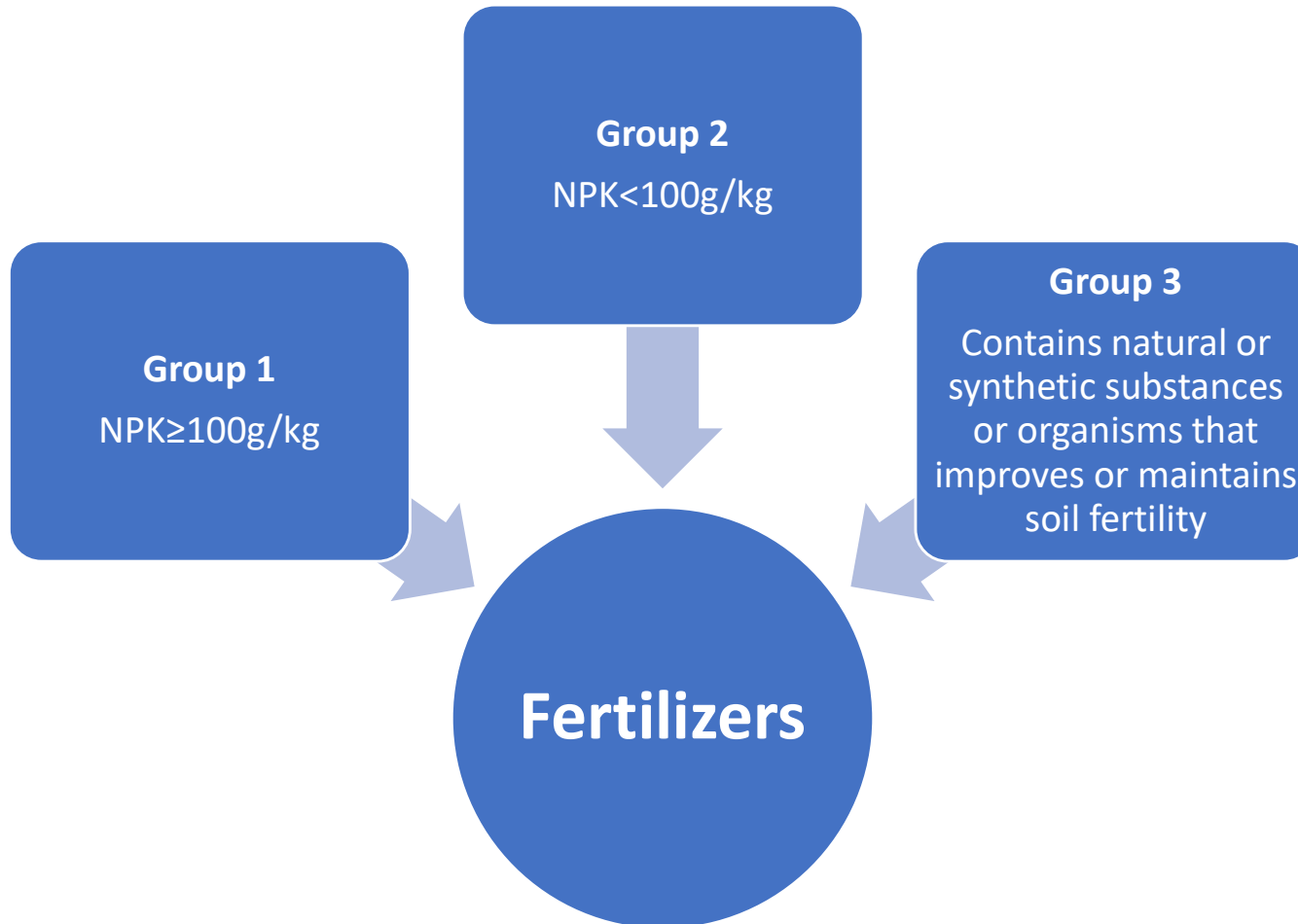
Fertilizer decision tree

<p style="text-align: center;"><u>Fertilizer</u></p>		<p>Group 1</p>	 <p>Which is a fertilizer containing a total equal or greater than 100 g/kg of N,P or K or any combination thereof</p>
<p>means any substances which is intended or offered to be used for improving or maintaining the growth of plants or the productivity of the soil;</p>		<p>Group 2</p>	<p>Which is a fertilizer containing a total of less than 100 g/kg of N, P or K or any combination thereof or any other recognised plant nutrient (s) in acceptable amounts as indicated in Tables 1-9 and 13-15</p>
		<p>Group 3</p>	<p>Which is a fertilizer containing natural or synthetic substance(s) or organism(s) that improve(s) or maintain(s) the physical, chemical or biological condition (fertility) of the soil: and "soil Improver" has the same meaning</p> <ul style="list-style-type: none"> * Enhances growth * Increases yield

Agricultural remedy decision tree

			LABEL CLAIMS
<p><u>Agricultural remedy</u></p>		Herbicide	 <ul style="list-style-type: none"> * Kills weeds
<p>means any chemical substance or biological remedy or any mixture of combination of any substance or remedy intended or offered to be used-</p>		Fungicide	 <ul style="list-style-type: none"> * Fungicidal / Bactericidal properties
<p>a) for the destruction, control, repelling, attraction or prevention of any undesired microbe, alga, nematode, fungus, insect, lant, vertebrate, invertebrate, or any product thereof, but excluding any chemical substance biological remedy or other remedy in so far as it is controlled under the Medicines an Related Substances Control Act. 1965 (Act 101 of 1965), or the Hazardous Substances Act, 1973 (Act 15 of 1973); or</p>		Insecticide	 <ul style="list-style-type: none"> * Kills insects
<p>b) as plant growth regulator, defoliant, desiccant or legume inoculant, and anything else which the Minister has by notice in the Gazette declared an agricultural remedy for the purpose of this Act,</p>		Plant growth regulator	 <ul style="list-style-type: none"> * Growth regulator
		Other	 <ul style="list-style-type: none"> * Attracts insects * Repels insects * Colouring agent for marker purpose * Anti Transparency product * sunburn protection * Dust suppressants * Management practices used * Organic SANS 1369:2016

Fertilizer Groups



DALRRD regulatory requirements

- Payment of application fee
- Cover letter
- Application form fully completed in duplicate (including Formulation table)
- Draft Label in duplicate
- Certificate of Analysis (from a reputable, independent and accredited laboratory with ISO17025 or AgriLASA affiliated)
 - Chemical potential of product
 - Heavy metals as listed in Table 12 fertilizer Regulations
 - pH, Ash content, Moisture content, Specific Gravity (Liquid)
 - Microbial Identification
 - Imported microbes, import permits, confirmation of supply, Microbe collection details
 - Local microbes: Bioprospecting permits, accession number assigned by manufacturer and origin of microbial culture
 - Quality control, pathogen analysis
 - Strain and CFU / relevant unit quantities, purity,
 - Shelf life
 - Efficacy studies
- Material Safety Data Sheet
- GHS classification.

Composts/Vermicomposts/Composted Manures

The COA should include:

- Chemical potential of the product
- Potentially harmful elements (Table 12)
- Ash content
- Moisture content
- Organic matter content
- Sieve test
- pH

WHERE DOES BSF FRASS FIT IN?

- We will have to build a specification realistically do-able by every FRASS producer.
- FRASS has:
 - A nutritional component – Carbon & Nitrogen
 - There is a microbial composition – possible *Baccilus* spp, *Lactobacillus* spp. *Pseudomonas* spp.
- Can we claim better plant growth overall plant growth, root growth, soil ameliorant?

Pathogens to consider.....

Table i. Proposed OECD microbial contamination screening requirements for microbial products. Note that green represents Tier 1 level analyses and orange represents Tier 2 level analyses.

Type of Indicator	Indicator	Limit	Rationale
Microbial Activity	Aerobic Plate Count	< 10 ⁵ CFU/g or mL	- indicator of aerobic bacterial contamination - often used in the food industry - many standard methods available - optional requirement if MPCA is an aerobic bacterium
	Anaerobic spore-formers	< 10 ⁵ CFU/g or mL	- cause of health concerns in the food industry; indicates hygiene failures during processing - anaerobic spore-forming organisms have potential to persist in soil/water for long periods of time - standard methods for anaerobic spore-formers available - optional requirement if other hygiene indicators (i.e., <i>Escherichia coli</i> and <i>Staphylococcus aureus</i>) are screened during product manufacture and if the MPCA is a known micro-aerophile
	Yeast and Mould Count	< 1000 CFU/g or mL	- many standard methods available - general indication of yeast and mould contamination, and potential presence of mycotoxins - may be optional requirement if MPCA is a fungus
Human, fecal and environmental contamination	<i>Escherichia coli</i>	Absence in 1 g or mL	- indicator of fecal contamination - recent health concern involving contaminated fruits/vegetables; certain sensitive sub-populations are particularly at risk
	OR Thermotolerant (fecal) coliforms	< 10 CFU/g or mL	- can survive/multiply on plants and in soil and water - many standard methods available
	<i>Staphylococcus aureus</i>	Absence in 1 g or mL	- indicator of contamination due to improper handling - many standard methods available
	<i>Pseudomonas aeruginosa</i>	Monitoring*	- indicator of environmental contamination - optional requirement recommended ONLY if screening results for other hygiene indicators suggest possible presence of pseudomonads
Pathogen	<i>Salmonella</i>	Absence in 25 g or 25 mL	- U.S. EPA and Health Canada requirement - many standard methods available - often used in the food industry
	<i>Listeria monocytogenes</i>	Absence in 25 g or 25 mL	- recent health concern with respect to contaminated fruits/vegetables and processed meat products - can survive/multiply on foods stored under refrigerated temperatures - optional requirement particularly if screens for other hygiene indicators consistently demonstrate acceptably low levels of

		contamination. Regulatory authorities must also have a high degree of confidence in the manufacturer's quality assurance programme when deciding whether to waive routine screening for this micro-organism
	<i>Vibrio</i>	<p>Absence in 25 g or 25 mL</p> <ul style="list-style-type: none"> - U.S. EPA test guideline requirement, therefore testing is mandatory for U.S. registration/authorization - not endemic in many countries - basic food handling precautions/personal hygiene habits exclude these organisms during manufacturing - isolation of specific species or pathogens (e.g., <i>Vibrio cholerae</i>) is NOT recommended unless the analytical laboratory follows appropriate biohazard protocols - optional requirement and recommended ONLY if there is a high potential for contamination or if species of <i>Vibrio</i> are known to naturally occur at the geographical location of the manufacturing site
	<i>Shigella</i>	<p>Absence in 25 g or 25 mL</p> <ul style="list-style-type: none"> - U.S. EPA test guideline requirement, therefore testing is mandatory for U.S. registration/authorization - not endemic in many countries - most commonly related to undercooked shellfish rather than manufacturing processes; basic food handling precautions/personal hygiene habits exclude these organisms during manufacturing - isolation of specific species or pathogens (e.g., <i>Shigella dysenteriae</i>) is NOT recommended unless the analytical laboratory follows appropriate biohazard protocols - optional requirement and recommended ONLY if there is a high potential for contamination or if species of <i>Shigella</i> are known to naturally occur at the geographical location of the manufacturing site

Certification

- Ceres / Eco-Cert
- Global GAP – important factor would be label claims, and crops stated on labels!!
- Possible pot trials
- Extrapolation to crop groups with pot trials.

Possible Data Extrapolation		
Crop type	Crop listed from	Extrapolation to
Row crops: grain	Maize, sweetcorn, sorghum, millet	Whole group
Row crops: small grain	Wheat, barley, oat, rye,	Whole group
Legume crop	Dry bean, green bean, soybean, Lentils, Lupins, clover, alfalfa, lentils, peanut.	Whole group
Tree crop: Pome fruit	Apple, pear, peach,	Whole group
Tree crop: Stone fruit	Apricot, nectarine, peach, plum	Whole group
Tree crop: Citrus	Orange, lemon, mandarin	Whole group
Tree crop: Nut	Macadamia, pecan, hazelnut	Whole group
Grape vine	Table grape, wine grape	Whole group
Bulb vegetables	Onion, leek, garlic	Whole group
Root and stem vegetables	Carrot, radish	Whole group
Leafy vegetables	Cabbage, lettuce, broccoli, brussel sprout, spinach	Whole group
Cucurbits	Butternut, gem squash, cucumber, baby marrow, patty pan	Whole group
Potato	Potato	Any cultivar
Solanaceous fruits	Tomato, green pepper, paprika, chilli	Whole group

*Data must be generated for any crop not listed in the data extrapolation table.

Fertilizer bill

- Major changes proposed in the Bills are licensing of facilities that manufacture fertilisers, animal feed and pet food, moving away from the current model of pre-approval of all animal feed products before putting them on the market. Another change is that feed manufactured on commercial farms will now be regulated, resulting in some farms being required to register their manufacturing facilities.
- Registration of all raw materials
- Accreditation (possible GMP)

THE WAY FORWARD??????

- Creating a place for FRASS registrations within the given framework.
- Workshop on possible specifications for registration purposes.
- Supporting data – Elsevier journal excellent article on FRASS...