Australian Pesticides & Veterinary Medicines Authority

Product Name: F.S.A. Prosulfo Plus Herbicide
APVMA Approval No: 95686/146867

Label Name:	F.S.A. Prosulfo Plus Herbicide

Signal Headings:	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Constituent Statements:	ACTIVE CONSTITUENTS: 800 g/L PROSULFOCARB 120 g/L S-METOLACHLOR

Mode of Action:	GROUP 15 HERBICIDE

Statement of Claims:	For control of Annual Ryegrass (Lolium rigidum) and other grass and broadleaf weeds in Barley, Chickpeas, Faba Beans, Field Peas, Lentils, Lupins, Potatoes and Wheat

Net Contents:	20 L – 2500 L

Restraints:	This section contains file attachment.

Directions for Use:	This section contains file attachment.

Other Limitations:	

Withholding Periods:	WITHHOLDING PERIODS Barley, Chickpeas, Faba Beans, Field Peas, Lentils, Lupins, Wheat Harvest: NOT REQUIRED WHEN USED AS DIRECTED Grazing: DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 10 WEEKS AFTER APPLICATION

	Potatoes: NOT REQUIRED WHEN USED AS DIRECTED

Trade Advice:	

General Instructions:	GENERAL INSTRUCTIONS F.S.A. PROSULFO PLUS is a short residual, soil applied, pre-emergent herbicide that is absorbed by the roots and shoots (coleoptile) of germinating seedlings with inhibition of growth in the meristematic region. Foliar uptake is possible but of lower effect. Upstream translocation in the plant occurs but movement in the phloem is very unlikely. Best activity can be expected from applications before or shortly after the germination of target weeds. For pre-emergent application, the product should be applied to a moist smooth seedbed free of soil clods and emerged weeds. Product efficacy may be reduced by improper incorporation, high levels of crop or trash residues, stones or foreign matter and in areas of extremely high weed seed density such as header rows. For optimal efficacy and crop safety in barley and wheat avoid shallow seeding and ensure accurate seed placement that avoids placement of seed in the herbicide band. Avoid water repellent soils, soils subject to water logging or where furrow walls are likely to collapse. Duration and effectiveness of weed control will depend on use rate, soil type and rainfall or irrigation after application. Adequate rainfall or irrigation should occur within 10 days of application, as this herbicide requires sufficient available soil moisture to ensure soil movement and uptake by emerging weed seeds. For early post-emergent application in wheat and barley to suppress annual ryegrass, the product should be applied to a moist soil. Annual Ryegrass should be free of stress from marginal moisture or from water- logging between crop planting and application. F.S.A. PROSULFO PLUS is less effective on larger emerged weeds and application to ryegrass which has commenced tillering should be avoided. Follow-up rainfall within 14 days of application will be beneficial to herbicide activity as it will move the herbicide into the soil around the shoot base and roots where it is most effective. Mild, transient crop effects may occur with wheat and barley after post-emergent applications. On sandy soils, if substantial rain occurs within the week following application crop phytotoxicity may be more severe. A registered post-emergent selective graminicide may be required for the control of later germinating Annual Ryegrass cohorts, especially in pulse crops. F.S.A. PROSULFO PLUS should be used as part of an integrated weed management program that utilises all available weed control tactics. Consider using a registered selective spray-topping treatment such as Gramoxone 250 Herbicide in pulse crops to reduce weed seed set. Crop Tolerance The selectivity of F.S.A. PROSULFO PLUS is a combination of positional and physiological selectivity. Positional selectivity must be maintained by sowing at an adequate depth below the herbicide band. The physiological selectivity of F.S.A. PROSULFO PLUS is given by the ability of cereals to metabolise the herbicide to inactive compounds more rapidly than susceptible weed species. Environmental factors such as rainfall events following application and soil type will influence product movement into the seed zone. Crop injury may occur when used in sandy soils with high leaching potential or in all soil types when heavy rainfall is received between sowing and emergence. Crop injury may also result from tank mixes with other herbicides. Shallow seeding is not recommended due to the greater potential for movement of herbicide within close proximity of the emerging crop. Conditions resulting in poor root development or the occurrence of crop stresses including waterlogging, drought, frost, nutrient deficiency or disease can result in unacceptable crop damage and yield loss as a result of root uptake of herbicide. Although crop tolerance has been clearly demonstrated in a wide range of registered crop cultivars, differences in relation to the tolerance of recent and future release cultivars may exist. Risk of crop damage may be exacerbated where varieties with short coleoptile length are planted in conjunction with the use of some fungicide seed treatments. In general pulse crop tolerance is greatest in Chickpeas>Lentils>Lupins>Faba Beans>Field peas (most susceptible).

Consult your local agronomist, advisory service or National Variety Trial (NVT) herbicide tolerance screening results for the latest information of specific varietal tolerance.
Tillage System
IBS with knife or blade points: Working speed should ensure adequate incorporation of product but avoid soil throw into the adjacent seeding row. Use of presswheels will minimise potential for herbicide to be dragged back into seeding rows. Weed control may be reduced in seeding rows as a result of concentration of herbicide in crop inter-rows. A knife or blade point is defined as being <12 mm in width, having no wings, inverted T or blade and is generally on a minimum 200 mm row spacing.
Full disturbance or conventional cultivation, including trailing harrows/prickle chain: Care should be taken to ensure seed placement below the herbicide band as crop damage may result where seed is sown too shallow. Consult trifluralin label for tank mix rate selection.
PRODUCT MUST BE INCORPORATED INTO THE SOIL WITHIN 7 DAYS OF APPLICATION

Mixing
F.S.A. PROSULFO PLUS is an emulsifiable concentrate that mixes readily with water. Fill the spray tank to one quarter full. Add F.S.A. PROSULFO PLUS and continue adding water to make up to the final spray volume. Agitate while mixing and spraying.
When tank mixing wettable powder or water dispersible granule formulations should be added to the tank first followed by suspension concentrates (flowables), water soluble salts then F.S.A. PROSULFO PLUS or other emulsifiable concentrate formulations. Maintain thorough agitation during mixing and application. Agitate tank mixes vigorously if allowed to stand. Note: Tank mix spray solutions should NOT be left standing in the vat overnight.
Sprayer Clean Up
After using F.S.A. PROSULFO PLUS, empty the tank completely and drain the whole system. Thoroughly wash inside the tank using a hose, drain the tank and clean any filters in the tank, pump, line and nozzles.
To rinse: After cleaning the tank as above, quarter fill the tank with clean water and circulate through the pump, lines, hoses and nozzles. Drain and repeat the rinsing procedure twice.
Compatibility
DO NOT tank mix with 2,4-D amine or S-Metolachlor 960 g/L.
Always refer to registered plant back restrictions on the label of the tank mix partner.
Refer to your local Four Seasons Agribusiness Pty Ltd representative for more information relating to the compatibility and crop safety of herbicide tank mixtures.
F.S.A. PROSULFO PLUS is compatible with liquid Urea Ammonium Nitrate (UAN) fertilisers provided the spray solution is under constant high agitation.
As formulations of other manufacturers' products are beyond the control of Four Seasons Agribusiness Pty Ltd and water quality varies with location, all mixtures should be tested prior to mixing commercial quantities.
Application
DO NOT apply by air.
Barley, Chickpeas, Faba Beans, Field Peas, Lentils, Lupins, Wheat: Apply by ground rig only in a minimum of 50 L water/ha. Water rate selection should be based on soil type and stubble load. Stubble loads above 40 to 50% ground coverage can reduce weed control below acceptable levels. Water volumes greater than 70 L/ha are recommended in order to reduce the impact of stubble in direct drill or minimum tillage systems. Use a nozzle delivering spray quality in the coarse spray range.
Potatoes: Apply by ground rig only in a minimum of 100 L water/ha. Use a nozzle delivering spray quality no smaller than a coarse droplet size.

Tank Mixes
Application of F.S.A. PROSULFO PLUS at less than 2.5 L/ha when tank mixing for Annual Ryegrass control WILL NOT be effective in the control of Group 3 resistant populations nor to delay the onset of herbicide resistance development. Tank mixing of herbicides is only effective in managing resistance where a lethal dose rate of each herbicide is applied. Whilst a tank mixture of 2 herbicides of differing modes of action at sub-lethal dose rates may still provide a high level of weed control, the risk of developing resistance to multiple modes of action is increased. Tank mixtures of F.S.A. PROSULFO PLUS with trifluralin are only recommended where targeting additional weed species, on sandy soils where soil

	moisture is limiting or where product movement into the seeding zone poses a crop safety risk.

Resistance Warning:	RESISTANT WEEDS WARNING GROUP 15 HERBICIDE F.S.A. PROSULFO PLUS Herbicide is a member of the thiocarbamates and chloroacetamides groups of herbicides. The product has the inhibitors of fat synthesis and inhibitors of cell division / inhibitors of very long chain fatty acids modes of action. For weed resistance management, the product is a Group 15 herbicide. Some naturally occurring weed biotypes resistant to the product and other Group 15 herbicides may exist through normal genetic variability in any weed population. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds will not be controlled by this product or other Group 15 herbicides. Since the occurrence of resistant weeds is difficult to detect prior to use, Four Seasons Agribusiness Pty Ltd accepts no liability for any losses that may result from the failure of this product to control resistant weeds. Resistance Management Large numbers of healthy surviving weeds can be an indication that resistance is developing. Efforts should be made to prevent seed set of the surviving weeds. DO NOT make more than 1 application of a Group 15 herbicide with the inhibition of fat acid synthesis mode of action to a crop in the same season, excluding use of a split application at planting as per directions for use. If the user suspects that the target weed population is resistant to herbicides with this mode of action, F.S.A. PROSULFO PLUS or other Group 15 herbicides should not be used. Strategies to minimise the risk of herbicide resistance are available. The above recommendations should be incorporated into an Integrated Weed Management (IWM) Program that uses a diverse range of options to manage grass weeds and avoids over reliance on any 1 method of control. Consult your farm chemical supplier, consultant, local Department of Agriculture or Primary Industries, or local FSA representative for details.

Precautions:	Re-entry Period: DO NOT enter treated areas until the spray has dried unless wearing cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical resistant gloves. Clothing must be laundered after each day’s use.

Protections:	PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS DO NOT sow susceptible crops within 6 months of herbicide application. DO NOT allow spray to drift onto adjacent fallow land. DO NOT apply on or near shrubs, trees, lawns or crops other than barley, chickpeas, faba beans, field peas, lentils, lupins, potatoes or wheat. DO NOT drain or flush equipment on or near desirable trees or other plants, where their roots may extend, or in situations where by movement of soil or by seepage absorption of the herbicide may occur. PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT HIGHLY TOXIC TO AQUATIC ORGANISMS. DO NOT contaminate streams, rivers or watercourses with the chemical or used containers. DO NOT apply under meteorological conditions or from spraying equipment which could be expected to cause spray to drift onto adjacent areas, particularly wetlands, waterbodies or watercourses.

Storage and Disposal:	STORAGE AND DISPOSAL Store in the closed, original container in a cool, well-ventilated area. DO NOT store for prolonged periods in direct sunlight. Triple rinse containers before disposal. Add rinsings to the spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product. Returnable containers Empty contents fully into application equipment. Close all valves and return to the point of supply for refill or storage.

Safety Directions:	SAFETY DIRECTIONS Will irritate the eyes and skin. Avoid contact with eyes and skin. When opening the container and preparing spray wear cotton overalls, over normal clothing, buttoned to the neck and wrist, a washable hat, elbow-length chemical resistant gloves, face shield or goggles. When using the prepared spray wear cotton overalls, over normal clothing, buttoned to the neck and wrist, a washable hat, elbow-length chemical resistant gloves. If product on skin, immediately wash area with soap and water. if product in eyes, wash it out immediately with water. After each day’s use, wash gloves, face shield or goggles and contaminated clothing. Wash hands after use.

First Aid Instructions:	FIRST AID If poisoning occurs, contact a Doctor or Poisons Information Centre. Phone Australia 13 11 26, New Zealand 0800 764 766.

First Aid Warnings:	

RESTRAINTS:
DO NOT apply to vetch or other pulse crops not listed.
DO NOT use in seeding/tillage systems that cannot ensure accurate seed placement and adequate spatial separation of seed and herbicide.
DO NOT apply to soils prone to waterlogging, sodic soils or soils affected by physical compaction.
DO NOT apply if heavy rains or storms that are likely to cause runoff are forecast within 2 days of application.
DO NOT irrigate treated fields to the point of run off within three days of application.
DO NOT apply to potato fields where slopes exceed 4%.
Potatoes: **DO NOT** apply more than once per crop.
Wheat, Barley: **DO NOT** apply more than 2.5 L/ha per single growing season.

SPRAY DRIFT RESTRAINTS
Specific definitions for terms used in this section of the label can be found at apvma.gov.au/spraydrift.
DO NOT allow bystanders to come into contact with the spray cloud.
DO NOT apply in a manner that may cause an unacceptable impact to native vegetation, agricultural crops, landscaped gardens and aquaculture production, or cause contamination of plant or livestock commodities, outside the application site from spray drift. Wherever possible, correctly use application equipment designed to reduce spray drift and apply when the wind direction is away from these sensitive areas.
DO NOT apply unless the wind speed is between 3 and 20 kilometres per hour at the application site during the time of application.
DO NOT apply if there are hazardous surface temperature inversion conditions present at the application site during the time of application. Surface temperature inversion conditions exist most evenings one to two hours before sunset and persist until one to two hours after sunrise.

DO NOT apply by a boom sprayer unless the following requirements are met:
• Spray droplets not smaller than a **COARSE** spray droplet size category.
• Minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for boom sprayers') are observed.

Buffer zones for boom sprayers

Application rate	Mandatory downwind buffer zones (metres)	
	Natural aquatic areas	Vegetation areas
Up to maximum label rate	20	10

DIRECTIONS FOR USE

Crop	Weeds	Rate/ha	Critical Comments
Barley, Wheat	Annual Ryegrass (*Lolium rigidum*) including control of Group 3 resistant populations, Silver Grass (*Vulpia* spp.), Stone Crop (*Crassula* spp.) **Suppression** of Barely Grass (*Hordeum* spp.)	2.5 L	Apply pre-emergent and incorporate mechanically by sowing operation (IBS). Application should be made to a moist seedbed up to 7 days prior to sowing and sufficient rain to thoroughly wet the top 3 to 4 cm of soil should occur within 10 days after spraying. Avoid soil throw into adjacent seeding rows or sites where furrow walls may collapse. Refer to crop tolerance, incorporation and tillage requirements under General Instructions. **Barley Grass management** Where a high weed density is expected, delay application and sowing until after the emergence of the first Barley Grass germination following planting rains. Control with cultivation or the application of a registered non-selective herbicide containing 500 g/L glyphosate. Where sowing following a pasture phase, it is recommended that spray topping with 250 g/L paraquat or glyphosate is carried out in the previous year to reduce Barley Grass seed set.
		1.75 L pre-plant followed by 750 mL post plant pre-emergent	Apply pre-plant and incorporate mechanically by the sowing operation (IBS). Application should be made to a moist seedbed up to 7 days prior to planting. Follow with the post-plant application as soon after sowing as possible, but before the crop and weeds emerge. Sufficient rain to thoroughly wet the top 3 to 4 cm of soil should occur within 10 days after each application. At planting avoid soil throw into adjacent seeding rows or sites where furrow walls may collapse. **Barley grass management**: Refer to IBS recommendation

Crop	Weeds	Rate/ha	Critical Comments
Barley, Wheat *continued*	Suppression of Annual Ryegrass (*Lolium rigidum*) (1 to 3 leaf growth stage)	2.5 L	The use of F.S.A. PROSULFO PLUS is intended as part of an integrated annual ryegrass management strategy that includes varied means to reduce ryegrass survival and seed-set, to sustain low seed bank numbers. Early post-emergent use of F.S.A. PROSULFO PLUS should not be the primary means of managing ryegrass numbers. Surviving plants not controlled by F.S.A. PROSULFO PLUS may be stunted and uncompetitive but may still set seed. Apply only to annual ryegrass growing where the soil moisture profile and growing conditions since planting have been good. A follow-up rainfall within14 day of application is required to achieve a high level of weed suppression. **DO NOT apply F.S.A. PROSULFO PLUS after growth stage Z25 (GS25)** **DO NOT apply F.S.A. PROSULFO PLUS post-emergent to crops that have been treated with a pre-emergent or split application of F.S.A. PROSULFO PLUS.** **DO NOT apply to crops that are water-logged or may be subject to water-logging as unacceptable crop injury may result.** **DO NOT apply to Annual Ryegrass that has been stressed due to either a period of marginal moisture or water-logging as the level of weed control may be reduced.** **DO NOT apply to crops under stress, such as herbicide damage, due to increased risk of further crop injury.**
	Annual Ryegrass (*Lolium rigidum*), Paradoxa Grass (Canary Grass), *Phalaris* spp., Red and White Fumitory, Sand Fescue, Silver Grass (*Vulpia* spp.), Stone Crop (*Crassula* spp.), soil surface Wild Oats, Wireweed (Hogweed) **Suppression** of Barley Grass (*Hordeum* spp.), Brome Grass, Deadnettle, Rough Poppy, Yellow Burr Weed	1.5 to 2.5 L plus 0.8 to 1.5 L of a 480 g/L trifluralin	DO NOT use less than 2.5 L/ha F.S.A. PROSULFO PLUS where Group 3 resistance is confirmed or suspected. Use of F.S.A. PROSULFO PLUS below 2.5 L/ha alone or in a tank mix WILL NOT be effective in the control of Group 3 resistant Annual Ryegrass nor to delay the onset of herbicide resistance development. Refer to Tank Mixes under General Instructions. Apply pre-emergent and incorporate mechanically by sowing operation (IBS). Application should be made to a moist seedbed up to 24 hours prior to sowing and sufficient rain to thoroughly wet the top 3 to 4 cm of soil should occur within 10 days after spraying. Avoid soil throw into adjacent seeding rows or sites where furrow walls may collapse. Use 1.5 L/ha of a 480 g/L trifluralin in minimum tillage knife/blade point systems only as per trifluralin label. Attention to sowing speed and soil throw is important to ensure crop safety. This is especially critical at higher use rates. Risk of crop injury may increase where greater than 1 L/ha trifluralin 480 g/L is applied with 2.5 L/ha F.S.A. PROSULFO PLUS. Always refer to use recommendations on trifluralin label regarding soil type restrictions and incorporation timing and rate selection under different tillage systems. This mixture is recommended for control or suppression of additional weeds, on sandy soils where product movement into the seeding zone poses a crop safety risk or where good soil moisture cannot be assured. Refer to crop tolerance, incorporation and tillage requirements under General Instructions.

Crop	Weeds	Rate/ha	Critical Comments
Barley, Wheat *continued*	Toad Rush (*Juncus bufonius)*	1.25 to 2.5 L	DO NOT use less than 2.5 L/ha F.S.A. PROSULFO PLUS where Group 3 resistant Annual Ryegrass is confirmed or suspected. Use of F.S.A. PROSULFO PLUS below 2.5 L/ha WILL NOT be effective in the control of Group 3 resistant Annual Ryegrass nor to delay the onset of herbicide resistance development. Refer to Tank Mixes under General Instructions. Apply pre-emergent and incorporate mechanically by the sowing operation (IBS). Application should be made to a moist seedbed up to 7 days prior to sowing and sufficient rain to thoroughly wet the top 3 to 4 cm of soil should occur within 10 days after spraying. Avoid soil throw into adjacent seeding rows or sites where furrow walls may collapse. Use upper label rate where longer residual control is required or in situations where crop competition is minimal. Refer to crop tolerance, incorporation and tillage requirements under General Instructions.
Wheat	Annual Ryegrass (*Lolium rigidum*), Silver Grass (*Vulpia* spp.), Stone Crop (*Crassula* spp.), Wild Turnip **Suppression** of Barley Grass, Brome Grass	2.5 L plus 25 g Sulfosulfuron 750 g/kg Herbicide	Apply pre-emergent and incorporate mechanically by sowing operation (IBS). Application should be made to a moist seedbed prior to sowing and sufficient rain to thoroughly wet the top 3 to 4 cm of soil should occur within 10 days after spraying. Avoid soil throw into adjacent seeding rows or sites where furrow walls may collapse. Refer to crop tolerance, incorporation and tillage requirements under General Instructions. Observe crop rotation guidelines detailed on Monza label.
Potatoes	Annual Ryegrass including control of Group 3 resistant populations, Barnyard Grass, Blackberry Nightshade, Fat Hen, Fumitory, Glossy Nightshade, Redroot Amaranth, Summer Grass, Toad Rush **Suppression** of Common Thornapple, Fierce Thornapple	4 to 5 L	Apply after planting, after the first cultivation but no later than 25% potato shoot emergence. Application should be made to moist soil. Good soil moisture in the top 3 to 5 cm of soil is required for weed uptake to occur. Drying of the topsoil can result in less effective weed control. Cultivation after herbicide application may be detrimental to weed control and crop safety if it results in the herbicide being unevenly distributed in the soil. Crop yellowing may occur where F.S.A. PROSULFO PLUS is used on soils that have a low organic matter content and which contain more than 60% of fines and silt (crops will recover fully). On these soil types, use rates of F.S.A. PROSULFO PLUS towards the lower end of the rate range. DO NOT apply more than once per crop. DO NOT apply after 25% potato shoot emergence. May be tank mixed with registered knockdown herbicide (eg containing 135 g/L paraquat plus 115 g/L diquat) at recommended label rates and timing for control of additional weeds.
	Capeweed	5 L	

Crop	Weeds	Rate/ha	Critical Comments
Chickpeas, Faba Beans, Field Peas, Lentils, Lupins	Annual Ryegrass (*Lolium rigidum*), Silver Grass (*Vulpia* spp.), Stone Crop (*Crassula* spp.), Toad Rush (*Juncus bufonius)*	2.5 L	Apply as a pre-emergent application to the soil surface up to 7 days prior to sowing and incorporate mechanically by the sowing operation (IBS). Application should be made to a moist seedbed up to 7 days prior to sowing and sufficient rain to thoroughly wet the top 3 to 4 cm of soil should occur within 10 days after spraying. **Accuracy of seed placement is critical in ensuring crop selectivity. Unacceptable crop injury, including a reduction in crop vigour and yield loss, may occur where adequate positional selectivity of the herbicide is not maintained or where heavy rainfall occurs during the early stages of crop establishment. Avoid soil throw into adjacent seeding rows or sites where furrow walls may collapse. Shallow sowing is not recommended due to the greater potential for movement of herbicide within close proximity of the emerging crop, especially in sandy soils.** Application of F.S.A. PROSULFO PLUS to crops sown in soils of high leaching potential and those low in clay or organic matter may result in crop damage, especially in the event of heavy rainfall during the early stages of establishment. Conditions resulting in poor root development and the occurrence of crop stresses including waterlogging, drought, nutrient deficiency or disease may result in unacceptable crop damage where adequate positional selectivity of the herbicide has not been maintained. **Avoid double spraying (over-lapping) of the crop with herbicide, including on headlands.** Field peas and Faba beans have been found to be more susceptible to herbicide injury. Refer to crop tolerance, incorporation and tillage requirements under General Instructions. Late germinating weeds may not be adequately controlled and a post-emergent graminicide or registered spray-topping herbicide treatment (eg 250 g/L paraquat) may be required to control later germinating weed cohorts or to reduce weed seed set.