

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Compiled by J. Baron, IR-4 Project

The following ***New Pest Control Products/Transition Solutions List*** contains brief description of numerous new pest control materials that have been introduced over the last several years. Additionally, it contains information on some “older” crop protection chemicals that are believed to have room for new uses. Many of these pest control tools offer great promise to fill the pest management voids expected from the cancellation of pesticides/pesticide uses associated with the Food Quality Protection Act. Some of these new products have been classified by the EPA as reduced risk for one or more uses while others have characteristics that make them more desirable than some of the existing products. Several of the pest control materials have been registered by the EPA for certain crops, while others have their initial registration pending. In most cases, the usefulness of these new tools on minor crops is still unknown.

HERBICIDES

Herbicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Alternaria destruens</i> (SMOLDER)	UAP	Microbial biopesticide	Controls dodder (swamp, largeseed, field, and smallseed)	Biopesticide. Pending use on cranberry. Potential use on tomato and pepper
Amicarbazone (DINAMIC)	Bayer Crop Science	Triazolinone	Applied at rates up to 500 g ai/ha (0.45 lb ai/A) to the soil preplant or pre-emergence. It also has burndown activity. Soil and burndown activity is primarily on broadleaf weed species.	Pending use in corn and sugarcane
Azimsulfuron (GULLIVER)	DuPont		Grasses and broadleaf weeds	Potential use on rice (international registrations approved)
Beflubutamid (UBH-820)	Ube Industries	Phenoxybutanamide (inhibits phytoene desaturase).	Post-emergence control of broadleaf weeds at rates of 170 to 255 g ai/ha (0.15 to 0.23 lb ai/A)	Potential use on wheat, barley, rye, and triticale
Bensulfuron methyl (LONDAX)	DuPont	Sulfonylurea	Most broadleaf and sedge weeds	Registered on rice
Bispyribac sodium (REGIMENT)	Valent & Kumiai	Sulfonylurea (ALS Inhibitor)	Annual/perennial grasses and broadleaf weeds including herbicide resistant barnyardgrass.	Candidate Reduced Risk Product. Registered on rice
Butafenacil (REBIN) (INSPIRE)	Syngenta	PPO Inhibitor	Controls important grasses, broadleaf and sedge weeds as a desiccant and defoliant	OP Replacement (defoliant tribufos). Pending registration on cotton, corn, grape, tree nut group, and pome fruit. Potential use on sugar beet, cereals, citrus fruit group, garlic, shallots and maybe onion.
Carfentrazone-ethyl (AFFINITY, AIM)	FMC	Aryl triazolinone (PPO Inhibitor)	Numerous broadleaf weeds, including cocklebur and water hemp.	Reduced Risk Product. Registered on field corn, wheat, rice, grain sorghum, barley, sweet corn, oats, soybean, cotton, hop and caneberry subgroup. Pending use on potato and other members of the root and tuber vegetable group, fruiting vegetable group, Brassica leafy vegetable group, legume vegetable group, leafy vegetable group, cucurbit vegetable group, bulb vegetable group, blueberry and other members of the berry crop group, sunflower, canola, strawberry, citrus fruit group, tree nut crop group/pistachio, stone fruit group, pome fruit group, okra, sweet sorghum, sugar cane, herb and spice group, peanut, tropical tree fruits including avocado, guava, lychee, papaya, sugar apple. Potential use on horseradish.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Herbicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Catechin</i>	Colorado State University	A component from Spotted knapweed (<i>Centaurea maculosa</i>)	Controls many weeds	Potential use on corn, wheat and other grass crops.
<i>Cinidon-ethyl (LOTUS)</i>	BASF	Isoindoldione (Inhibits protoporphyrinogen oxidase).	It is particularly active post-emergence on <i>Galium aparine</i> , among other broadleaf species, in small grains at 30 to 50 g ai/ha (0.027 to 0.045 lb ai/A).	Unknown status on wheat, barley, and oat. International registrations approved.
<i>Clethodim (SELECT) (PRISM)</i>	Valent	Cyclohexanone ACCase inhibitor	Activity only on grass weeds	Registered on cotton, soybean, sugar beet, garlic, alfalfa, dry bean, peanut, dry bulb onion, green onion, shallot, other members of the bulb vegetable group, apple, grape, root and tuber vegetable group, sunflower, fruiting vegetable groups, carrots, radish, leaf petiole subgroup, cucurbit vegetable group, cranberry, strawberry, clover, canola, head and stem Brassica, leaf lettuce, flax and mustard seed. Pending use on beet, herb subgroup, endive, sesame, head lettuce, caneberry, asparagus, mint, spinach, legume vegetable group, hop, leafy Brassica subgroup and turnip tops. Potential use on pome fruit group, stone fruit group, and blueberry
<i>Clodinafop-propargyl (DISCOVER)</i>	Syngenta	Pyridylory-phenoxy propionate (ACC ase)	Selective post-emergence of wild oats, annual grasses and other weeds.	Registered on wheat.
<i>Clomazone (COMMAND)</i>	FMC	Isonazolidinone - Carotenoid biosynthesis inhibitor	Material controls a broad spectrum of grasses and broadleaf weeds.	Registered on soybean, cotton, pepper, succulent pea, cucurbit vegetables, cabbage, sweet potato, snap bean, tuberous and corm vegetables, rice, and sugarcane. Pending use on mint, broccoli, dry pea, and lentil. Potential use of dried shelled peas and bean subgroup.
<i>Clopyralid (STINGER)</i>	Dow AgroSciences	Pyridone	Controls a broad spectrum of broadleaf weeds including hard to control Canada thistle.	Registered on asparagus, field corn, grass seed, mint, sugarbeet, wheat, barley, oats, and crambe. Pending use on strawberry, cranberry, Brassica leafy vegetable group, spinach, pome fruit group, turnip, Swiss chard, canola, garden beets, stone fruit group, blueberry, sweet corn, hop, and flax.
<i>Cloransulam-methyl (FIRSTRATE)</i>	Dow AgroSciences	Sulfonamide (ALS Inhibitor)	Pre-emergence or post-emergence to control annual broadleaf weeds	Registered on soybean (in combination with other products). Pending use on cotton. Potential use on Southern pea.
<i>Colletotrichum gloeosporioides f. sp malvae (MALLET WP)</i>	Encore Technologies	Fungus	It is pathogenic to round-leaved mallow, small flowered mallow, common mallow, and velvetleaf	Biopesticide. Pending use on unspecified crops
<i>Cyhalofop-butyl (CLINCHER)</i>	Dow AgroSciences	Phenoxy-propionate	Post-emergence graminicide	Reduced Risk Product. Registered on rice. Potential use on oat, barley and wheat. (International registrations approved).
<i>Diclosulam (STRONGARM)</i>	Dow AgroSciences	Sulfonamide (ALS Inhibitor)	Pre- or post emergence for broadleaf weeds such as morningglory, cocklebur, velvetleaf and nutsedge	Registered on peanuts and soybeans.
<i>Diflufenzopyr (DISTINCT)</i>	BASF	Pyridine (Auxin transport inhibitor)	Annual grasses and broadleaf weeds. Sold in a pre-mix with dicamba	Reduced Risk Product. Registered on field corn. Pending registrations on sweet corn, and pasture grasses.
<i>Dimethenamid-P (FRONTIER X-2) (OUTLOOK)</i>	BASF	Chloroacetamide, single isomer of dimethenamid	Annual grasses, broadleaf weeds, yellow nutsedge	Reduced Risk Product. Registered on dry beans, field corn, sweet corn, popcorn, seed corn, peanut, grain sorghum, and soybean. Pending use on horseradish, sweet potato, sugarbeet, potato, seed grass, dry bulb/green onion, turnip, garden beets, winter squash and radish. Potential use on leek, mustard greens, snap beans, Southern pea, and okra.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Herbicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Drechslera monoceras</i> (MTB-951)	Mitsui Chemical	Biopesticide	Barnyardgrass	Potential use on rice (international use pending).
Ethametsulfuron-methyl (MUSTER)	DuPont	Sulfonylurea (ALS inhibitor)	Active against many grasses and broadleaf weeds.	Registered on canola, crambe and rapeseed.
Flazasulfuron (MISSION)	Syngenta & ISK	Sulfonylurea (ALS inhibitor)	Active against many grasses and broadleaf weeds with pre- and post-emergence activity at 50 grams/ha	Potential use on grape and olive (international registrations approved).
Floransulam (PRIMUS) (BOXER)	Dow AgroSciences	Triazolopyrimidine sulfonanilide, (ALS inhibitor)	Provides post-emergence control of broadleaf weeds, particularly <u>Galium aparine</u> (catchweed bedstraw) at rates of 0.0045 to 0.0067 lb ai/A.	Potential use on wheat, barley, and oat (international use approved).
Fluazolate (JV 485)	Bayer Crop Science and Monsanto	Pyrazole Benzoate	Pre-emergence control of broadleaf weeds and grasses	Registered on corn. Potential use on wheat.
Flucarbazone-sodium (EVEREST 70 WG)	Bayer Crop Science	Sulfonylaminocarbonyl-triazolinone, (ALS inhibitor)	Low rate post-emergence material that controls grass and certain broadleaf weeds	Reduced Risk Product. Registered use on wheat.
Flufenacet (AXIOM)	Bayer Crop Science	Oxyacetimide	Soil applied for annual grasses and some broadleaf weeds.	Registered on corn, soybean and grass seed as part of a premix herbicide. Pending use on potato, wheat and triticale. Potential use on tomato, onion, pepper, and rice
Flufenpyr-ethyl (S-3153)	Valent	PPO Inhibitor	Excellent control of velvetleaf and morningglories.	Candidate Reduced Risk Product. Pending registrations on corn, soybean, and sugarcane. Potential use on snap bean, lima bean and dry beans.
Flumetsulam (BROADSTRIKE)	Dow AgroSciences	Sulfonamide (ALS Inhibitor)	Controls broadleaf and grass weeds	Registered on corn and soybean (as part of a premix). Pending use on dry bean.
Flumiclorac (RESOURCE)	Valent	N-phenylphthalimide derivative (PPO Inhibitor)	Post-emergence control of velvetleaf	Reduced Risk Product. Registered on corn and soybean.
Flumioxazin (VALOR 50 WD)	Valent	N-phenylphthalimide derivative (PPO Inhibitor)	Low use rate pre-emergence broadleaf herbicide with contact activity and residual soil activity.	Registered on soybean and peanut. Pending registration on cotton, sugarcane, grape almond, garlic, dry bean, strawberry, potato, dry bulb onion, and mint. Potential uses on pome fruit group, stone fruit group, and other members of the tree nuts group, carrot, fruiting vegetable group, cucurbit vegetable group, blueberry and asparagus.
Fluroxypyr (STARANE F)	Dow AgroSciences & UAP	Picolinic acid	Post-emergence applications to control annual and perennial broadleaf weeds, including vol. potato, kochia and nightshade.	Reduced Risk Product. Registered for wheat, barley and oats. Pending use on bulb onion, sweet corn, sorghum, pome fruit group, and grass. Potential uses on spinach
Flurtamone	Bayer Crop Science	Furanone	Used as a pre- and early post-emergence for control of annual broadleaf weeds and some grasses	Potential use on wheat, barley, oats, sunflower and pea (international registrations approved).
Fluthiacet-methyl (APPEAL) (ACTION)	Entek Kumiai	Protax Inhibitor	Post-emergence control for velvetleaf, lambsquarters and other broadleaf weeds.	Registered on soybean, field corn, sweet corn and popcorn. Pending use on cotton (defoliant).
Foramsulfuron (OPTION)* *Foramsulfuron plus safner	Bayer Crop Science	Sulfonylurea (ALS inhibitor)	Post-emergence control of annual grasses (foxtails, barnyard, shatter cane, <u>Panicum</u> spp., crabgrass	Registered on corn.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Herbicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Furilazole</i>	<i>Monsanto</i>			<i>Registered on corn</i>
<i>Glufosinate (LIBERTY) (RELY)</i>	<i>Bayer Crop Science</i>	<i>Butanoic acid</i>	<i>Broad spectrum, non-selective</i>	<i>Registered on apples, bananas, grape, potato, field corn, soybean and tree nut group. Pending use on rice, sweet corn, canola, sugarbeet and blueberry.</i>
<i>Glyphosate (ROUNDUP) (TOUCHDOWN)</i>	<i>Monsanto</i>		<i>Controls most weeds</i>	<i>Registered on most crops</i>
<i>Halosulfuron (PERMIT) (SEMPRA) (SANDEA)</i>	<i>Monsanto / Gowan</i>	<i>Sulfonylurea (ALS inhibitor)</i>	<i>Nutsedge, velvetleaf, cocklebur, other broadleaf weeds</i>	Methyl Bromide Alternative. <i>Registered on field and sweet corn, cotton, grain sorghum, rice, sugarcane, cucumber, squash, melons other members of the cucurbit vegetable group, tree nut group, and pistachio. Pending use on tomato/other members of the fruiting vegetable group, asparagus, alfalfa and snap/dry beans. Potential use on potato, apple, peach, and succulent pea.</i>
<i>Imazamox (RAPTOR)</i>	<i>BASF</i>	<i>Imidazolinone (ALS inhibitor)</i>	<i>Annual grasses and some broadleaf</i>	Reduced Risk Product. <i>Registered on soybean, alfalfa, canola, legume vegetable group and wheat. Pending uses on grass, sunflower, red clover, chicory, and rice. Potential use on numerous other imidazidinone tolerant crops.</i>
<i>Imazapyr</i>	<i>BASF</i>	<i>Imidazolinone (ALS inhibitor)</i>	<i>Annual grasses and some broadleaf</i>	<i>Registered on soybean, head and leaf lettuce. Pending use on rangeland</i>
<i>Imazethapyr (PURSUIT)</i>	<i>BASF</i>	<i>Imidazolinone (ALS inhibitor)</i>	<i>Annual grasses and some broadleaf</i>	<i>Registered on soybean, alfalfa, "Clearfield" field corn, peanut, beans and pea. Pending use on rice.</i>
<i>Imazapic (CADRE 2AS)</i>	<i>BASF</i>	<i>Imidazolinone (ALS inhibitor)</i>	<i>Pre- and post-emergence control of annual grasses and broadleaf weeds</i>	Reduced Risk Product. <i>Registered on peanut and grass. Pending uses on soybean, and sugarcane.</i>
<i>Iodosulfuron (HUSAR)</i>	<i>Bayer Crop Science</i>	<i>Sulfonylurea (ALS inhibitor)</i>	<i>Early to mid-POST applications for control of grass and broadleaf weeds.</i>	<i>Pending use on corn.</i>
<i>Isoxaflutole (BALANCE)</i>	<i>Bayer Crop Science</i>	<i>Isoxazole</i>	<i>Soil applied for many annual grasses and some broadleaf weeds</i>	<i>Registered on field corn (geographically restricted) Pending use on sweet corn, wheat, and barley. Potential use on potato, sweet potato, chickpea, GM soybeans and GM sugarcane.</i>
<i>Mesosulfuron-methyl (MESOMAXX)</i>	<i>Bayer Crop Science</i>	<i>Sulfonylurea (ALS inhibitor)</i>	<i>Early and mid post-emergence control of grasses and some broadleaf weeds including annual ryegrass, annual bluegrass, wild oat, canarygrass, downy brome, Japanese brome wild mustard, Tansy mustard, blue mustard.</i>	<i>Potential use on wheat, rye and triticale.</i>
<i>Mesotrione (CALLISTO)</i>	<i>Syngenta</i>	<i>Cyclohexanedione, It disrupts carotenoid biosynthesis by inhibit of phydroxyphenylpyruvate dioxygenaset.</i>	<i>Pre-and post-emergence control of annual grasses and broadleaf weeds, including sulfonylurea resistant weeds. Will be marketed as a stand-alone product, as well as a premix.</i>	Reduced Risk Product. <i>Registered on field corn. Pending use on sweet corn and popcorn. Potential use on onion.</i>
<i>Metamifop (DBH-129)</i>	<i>Dongbu Hannong</i>			
<i>Metosulam (BARKO)</i>	<i>Dow AgroSciences</i>	<i>ALS inhibitor</i>	<i>Preemergence control of broadleaf weeds</i>	<i>Potential in corn and soybean. (International registrations approved)</i>
<i>Nicosulfuron (ACCENT)</i>	<i>DuPont</i>	<i>Sulfonylurea (ALS inhibitor)</i>	<i>Broadleaf weeds</i>	<i>Registered on corn. Potential use on cranberry, Bermuda grass, Eastern gamma grass.</i>

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Herbicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Oxadiargyl</i> (TOPSTAR 80 WP)	Bayer Crop Science	Oxadiazole	Broad spectrum weed control, similar to oxidiazinon	Potential use on rice, sugarcane, sunflower, unspecified vegetables and tree crops (international registrations approved)
<i>Oxasulfuron</i> (DYNAM)	Syngenta	Sulfonylurea, (ALS inhibitor)	Post-emergence for cocklebur, ragweed, and other broadleaf weeds	Potential use on soybean
<i>Pelargonic Acid</i> (SCYTHER)	Dow AgroSciences	Fatty acid	Contact, non-selective broad spectrum foliar applied material	Biopesticide. Registered on all crops
<i>Pethoxamid</i> (SUCCESSOR 600)	Tokuyama	Acetamide	Selectively controls certain grasses and broadleaf weeds	Potential use in corn, soybean and grass.
<i>Picolinafen</i> (PICO) (SNIPER) (PICO)	BASF	Aryloxycolinamide (inhibits phytoene desaturase)	Post-emergence use to control annual broadleaf weeds. The application rate will be 50 g ai/ha (0.045 lb ai/A). It will be sold as a pre-mix	Potential use on lupine, wheat, barley, rye, and triticale (international registrations approved).
<i>Profoxydim</i> (AURA) (TETRIS)	BASF	Cyclohexanone graminicide, (ACCase inhibitor)	Controls grass weeds at use rates ranging from 50 to 200 g ai/ha (0.045 to 0.18 lb ai/ha)	Unknown status on rice. International registrations approved.
<i>Prosulfuron</i> (PEAK)	Syngenta	Sulfonylurea (ALS inhibitor)	Post-emergence for cocklebur, kochia, lambsquarter, pigweed, and velvetleaf	Registered on sorghum, wheat, and cereals. Potential use on sugarcane
<i>Propoxycarbazone</i> (OLYMPUS) (ATTRIBUTE)	Bayer Crop Science	Sulfonylaminocarbonyl triazolinone (ALS inhibitor)	Post-emergence grass weed control.. Broadleaf weeds in the Cruciferous family are also controlled. Also controls <i>Bromus</i> sp.	Pending use on wheat, rye, and triticale.
<i>Propyzamide</i> (RAPSOL)	Sumitomo		Controls annual grasses and broadleaf weeds	Potential use on canola, chicory, pea, soybean, sunflower, artichoke and unspecified fruit crops.
<i>Puccinia thlaspeos</i> (WOAD WARRIER)	Greenville Farms	Biological herbicide-Dyers Woad Rust	Specific to Dyer's Woad	Pending on rangegrass
<i>Pyraflufen-ethyl</i> (ECOPART)	Nichino America	Protoc inhibitor	Post-emergence herbicide for general non-selective control of weeds or use as desiccant. Low use rates, 1 g ai/A	OP Replacement for cotton. Pending use on wheat, corn, potato and soybean. Potential use on hops and rice.
<i>Pyribenzoxium</i> (PYANCHOR)	Dow AgroSciences		Post emergence material with activity on numerous annual and perennial grasses, broadleaf and sedges.	Potential use on rice (international registrations approved).
<i>Pyristalid</i> (APRIRO ACE)	Syngenta	Acetolactate synthase inhibitor	Mainly a grass material, pre- and post-emergence for barnyardgrass.	Pending use on rice.
<i>Pyriothiobac-sodium</i> (STAPLE)	DuPont	Benzoate (ALS inhibitor)	Controls a wide range of broadleaf weeds via pre- and post-emergence application	Registered on cotton. Potential use on bell/non-bell pepper, cantaloupe, watermelon, and pumpkin.
<i>Quinclorac</i> (FACET) (PARAMOUNT)	BASF	Quinoline carboxylic acid	Post-emergence control of annual grasses and broadleaf weeds	Registered on rice, sorghum and wheat. Pending use on, barley, pasture canola and cranberry.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Herbicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Quizalofop-ethyl</i> (ASSURE)	DuPont	<i>Phenoxy propionic ester</i>	<i>Post emergence grass herbicide</i>	Registered on pineapple (HI only) cotton, beans, soybean, canola, mint, lupin, pea, sugar beet and lentil. Pending on flax, sunflower, pineapple (PR) and mustard seed. Potential on coffee.
<i>Rimsulfuron</i> (MATRIX)	DuPont	<i>Sulfonylurea (ALS inhibitor)</i>	<i>Annual grass and broadleaf weeds</i>	Methyl Bromide Alternative. Registered on field corn (as part of a pre-mix), tomato and potato. Potential use on cantaloupe.
<i>S-metolachlor</i> (DUAL MAGNUM)	Syngenta	<i>Chloracetanilide</i>	<i>Same spectrum as metolachlor (DUAL)</i>	Reduced Risk Product. Registered on corn, cotton, peanuts, beans, peas, potato, safflower, sorghum, soybean, dry bulb onion, cabbage, celery, pepper and peach (NJ only). Pending use on root crop subgroup, head and stem Brassica, tomato and other members of the fruiting vegetable group, grass seed, sunflower, spinach, rhubarb, Swiss chard and asparagus. Potential use on turnip greens, green onion, leek, parsley, broccoli, cauliflower, Chinese cabbage, collard, mustard greens, kale, melons, caneberry, blueberry, pumpkin, and sesame.
<i>Sethoxydim</i> (POAST)	BASF	<i>Cyclohexanone (ACCCase inhibitor)</i>	<i>Post emergence grass herbicide</i>	Registered on soybean, cotton, corn, stone fruit group, beans, garden beets, caneberry, carrot, cilantro, cranberry, endive, artichoke, grape, horseradish, leafy vegetables, Brassica leafy vegetables, peppermint, spearmint, asparagus, tuberous and corm vegetables, leek, onion, garlic, pome fruit group, blueberry, strawberry, nut crop group, alfalfa, clover, canola, and flax. Pending use on radish, Oriental radish, rutabaga, turnip roots and tops, lingonberry, herbs, tropical fruit, okra, kiwifruit, pistachio, safflower, buckwheat and sunflower. Potential use on chicory, sesame and ginseng
<i>Sulcotrione</i> (GALLEON) (MIKADO)	Bayer Crop Science	<i>Triketone</i>		Potential use on corn
<i>Sulfentrazone</i> (AUTHORITY)	FMC	<i>Aryl triazinone (PPO inhibitor)</i>	<i>Controls both broadleaf and grass species.</i>	Registered on soybean. Pending use on corn, dry pea and bean (including cowpea, chickpea, lentil), horseradish, lima bean (TN only), strawberry, sunflower, sugarcane, mustard greens, muskmelon, cantaloupe, watermelon, flax, mint, asparagus, potato, and Brassica leafy vegetable group. Potential use on grape, succulent pea, apple, carrot, turnip, and fruiting vegetable group.
<i>Sulfosulfuron</i> (MAVERICK)	Monsanto	<i>Sulfonylurea (ALS inhibitor)</i>	<i>Grasses/ broadleaf weeds including quackgrass, bromes and mustards</i>	Registered on wheat. Pending use on barley, oats & cereals. Potential use on potato and tomato.
<i>Tepraloxydim</i> (EQUINOX) (ARAMO)	BASF	<i>Cyclohexanedione, (ACCCase inhibitor)</i>	<i>Provides post-emergence grass weed control in broadleaf crops, at rates of 50 to 75 g ai/ha (0.045 to 0.067 lb ai/A). At rates of 100 g ai/ha (0.089 lb ai/A) it will control perennials such as johnsongrass, and suppress Bermuda grass.</i>	Registered on soybean, cotton, and canola. Pending use on sugarbeet. Potential use on beans, peas, onion, leek, and flax.
<i>Thiazopyr</i> (VISOR)	Dow AgroSciences	<i>Pyridine</i>	<i>Annual and perennial broadleaf weeds, including crabgrass and nutsedge.</i>	Registered on citrus fruit group (except lemon). Pending use on lemon, grape, stone fruit group, pome fruit group, tree nut group, pistachio, alfalfa, cranberry, and olive. Potential use on blueberry, caneberry, strawberry, avocado, date, fig, guava, kiwifruit, and persimmon.
<i>Thifensulfuron-methyl</i> (HARMONY)	DuPont	<i>Sulfonylurea (ALS inhibitor)</i>	<i>Broadleaf weeds</i>	Registered on wheat, barley, oat and soybean. Pending use on safflower. Potential use on alfalfa.
TM 435	Arvesta		<i>Post emergence control of broadleaf weeds</i>	Pending use on corn. Potential use on wheat on small grains

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Herbicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Tralkoxydim</i> (ACHIEVE)	<i>Syngenta</i>	<i>Cyclohexandione</i> (ACCCase inhibitor)	<i>Post-emergence for grass weeds such as wild oats, green and yellow foxtail, and annual ryegrass.</i>	Reduced Risk Product. Registered on wheat and barley.
<i>Triasulfuron</i> (AMBER)	<i>Syngenta</i>	<i>Sulfonylurea (ALS inhibitor)</i>	<i>Broadleaf weeds</i>	Registered on wheat, barley, pastures and rangeland.
<i>Tribenuron-methyl</i> (EXPRESS)	<i>DuPont</i>	<i>Sulfonylurea (ALS inhibitor)</i>	<i>Broadleaf weed</i>	Registered on wheat and barley. Pending use on sunflower.
<i>Triflurosulfuron-methyl</i> (UPBEET)	<i>DuPont</i>	<i>Sulfonylurea (ALS inhibitor)</i>	<i>Broadleaf weeds</i>	Registered on sugar beet and chicory. Potential use on garden beet and strawberry.
<i>Trifloxysulfuron</i> (ENFIELD)	<i>Syngenta</i>	<i>Sulfonylurea (ALS inhibitor)</i>	<i>Broadleaf weeds</i>	Methyl Bromide Alternative. Pending use on citrus fruit group, almond, tomato, cotton and sugarcane. Potential use on pepper as methyl bromide alternative
<i>Tritosulfuron</i> (CORTO)	<i>BASF</i>	<i>Sulfonylurea (ALS inhibitor)</i>	<i>Broadleaf weeds</i>	

PLANT GROWTH REGULATORS

Plant Growth Regulators (TRADE)	Registrant	Chemistry	Pest Control Spectrum	Status
<i>Ammonium thiosulfate</i>	<i>Siemer</i>	<i>Ammonium thiosulfate</i>	<i>Active as blossom thinner</i>	<i>Pending on apple</i>
<i>AVG</i> (RETAIN)	<i>Valent</i>	<i>Aminoethoxyvinylglysin</i> <i>eLysine analog</i>	<i>Plant growth regulator that improves harvest management by inhibiting ethylene biosynthesis.</i>	Registered on apple, pear, and stone fruit group (pre-harvest). Pending use on stone fruit group (post-harvest). Potential use on cotton, melons tomato, and tropical fruits.
<i>Bacillus cereus</i>	<i>Microflo</i>	<i>Bacteria</i>	<i>Cotton in boll retention and size.</i>	Biopesticide. Registered on cotton
<i>Benzyladenine</i> (PROMALIN*) *A combination product with gibberelic acid	<i>Valent</i>	<i>Benzylamicyo-purine</i> <i>and gibberelic acid A4 and A7</i>	<i>Produces typier larger fruit</i>	<i>Biopesticide. Registered on apple. Pending use on pistachio</i>
<i>Clofencet</i> (DETASSELOR)	<i>Monsanto</i>	<i>Carboxylic acid</i>	<i>Hybridizing agent</i>	Registered on barley, wheat, and soybean
<i>Copper Ethylenediamine</i> (INFERNO)	<i>Griffin</i>	<i>Copper organic complex</i>	<i>Desiccant and harvest aid</i>	Registered on potato
<i>CPPU</i>	<i>KIM-C1</i>			<i>Pending on almond, apple, blueberry, cranberry, fig, grape, kiwifruit, olive, pear, and plum.</i>
<i>Diphenylamine</i>	<i>Syngenta</i>	<i>Diphenylamine</i>	<i>Protects the fruit from scald</i>	Registered on apple. Pending use on pear
<i>1,2,6-DIPN</i> (AMPLIFY)	<i>UAP</i>	<i>Diisopropyl naphthalene</i>	<i>Controls sprouts on storage potatoes. Works in synergy with CIPC</i>	<i>Pending on potato. Potential use on unspecified crops.</i>

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Plant Growth Regulators (TRADE)	Registrant	Chemistry	Pest Control Spectrum	Status
<i>Forchlorfenuron</i>	<i>KIM-C1</i>			<i>Registered on almond, apple, blueberry, cranberry, fig, grape, kiwifruit, olive, pear, and plum.</i>
<i>Gibberellic Acid (RELEASE) (RYZUP) (PROVIDE)</i>	<i>Valent</i>	<i>Mixtures of gibberellans</i>	<i>Differing activities on crops, depending on specific mixture of gibberellans and stage of target crop.</i>	Biopesticide. <i>Registered on rice, cotton, apple, grape, cherry, citrus.</i>
<i>Glutamic Acid (AUXI GRO)</i>	<i>Emerald Bioagriculture</i>	<i>Glutamic acid</i>	<i>Enhances crop growth and yield</i>	<i>Registered on broccoli, cabbage, cauliflower, cotton, bell peppers, lettuce, peanut, potato, snap bean, spinach, tomato, almond and stone fruit group.</i>
<i>LPE 94T</i>	<i>NutraPark</i>	<i>Phospholipid</i>	<i>Ripening and shelf life enhancement</i>	Biopesticide. <i>Registered on apple, citrus fruit group, cranberry, nectarine, peach, pear, strawberry, tomato, grape, blueberry, cherry, pepper. Potential on many crops.</i>
<i>MBTA (ECOLYST)</i>	<i>Valent</i>	<i>Substituted tertiary amine</i>	<i>Novel PGR that promotes sugar accumulation in processing oranges</i>	Reduced Risk Product. <i>Registered on orange. Pending use on grapefruit.</i>
<i>1-MCP (SMART- FRESH)</i>	<i>AgroFresh Inc.</i>	<i>Cyclopropene</i>	<i>Inhibits the attachment of ethylene to ethylene receptor for a post- harvest storage extension</i>	Biopesticide. <i>Pending registration on apple. Potential use on tomato, melons, broccoli, head lettuce, leafy vegetable subgroup, cabbage, and other fruits.</i>
<i>Mepiquat Chloride (PIX)</i>	<i>BASF</i>	<i>Quaternary ammonium</i>	<i>Shortens plant internodes and plant height</i>	<i>Registered on cotton. Pending use on grapes. Potential use on onion, garlic, melons, pecan, okra, pepper, and sweet potato.</i>
<i>NAA</i>	<i>Amvac</i>		<i>Tree sucker control, manages crop load</i>	<i>Registered on grape and citrus fruit group. Pending use almond, grapefruit, plum, pomegranate and walnut.</i>
<i>Prohexadione Calcium (APOGEE)</i>	<i>BASF/Kumiai Chemical</i>	<i>Calcium carboxylate</i>	<i>Reduces vegetative growth-better balance between canopy development and fruit production</i>	Reduced Risk Product. <i>Registered on pome fruit group, pea, seed grass and peanut. Potential use on alfalfa, rice, sweet cherry, hop, mint, seed potato, strawberry, sweet potato, avocado, and mango.</i>
<i>RITE SIZE</i>	<i>Agrol</i>		<i>Manages the crop load</i>	<i>Potential use on apple.</i>
<i>Sodium nitrophenolate (ATONIK)</i>	<i>Asahi Mfg. Ltd.</i>	<i>Combination of sodium nitrophenolates and nitroguatalolate</i>	<i>Increased nutrient uptake, resulting in improved yields</i>	<i>Potential use on all crops.</i>
<i>Trinexapac-methyl (PALISADE)</i>	<i>Syngenta</i>	<i>Cyclohexane carboxylic acid</i>	<i>Growth regulator with use resulting in less potential for lodging, more efficient seed harvest, and improved seed set.</i>	<i>Registered on ryegrass seed. Potential use on pome fruit, sugarcane, rice, onion, le, alfalfa, and citrus.</i>

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

INSECTICIDES

Insecticides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Uit, Status
<i>Abamectin</i> (AGRIMEK) (AVID) (ZEPHYR) (CLINCH)	Syngenta	Macrocylic lactone glucoside (Avermectin)	Broad-spectrum araricide with activity on leafminers, Colorado potato beetle, and pear psylla. Weak against sucking insects and thrips. Good IPM tool with short re-entry interval. Translaminar activity providing long residual activity.	Registered on cotton, citrus fruit group, potato, celery, tomato, bell-pepper, head lettuce, almond, walnut, pear, apple, hop, strawberry, cucurbit vegetable group, grape, seed alfalfa and celeriac. Pending use on mint, canistel, jaboticaba, lychee, mango, passion fruit, mamey sapote, black sapote, star apple., wax jambu, pasture grasses, bulb vegetable group, acerola, carambola, herb subgroup, avocado, leaf lettuce, spinach, and other members of the leafy vegetable group, Brassica leafy vegetable group, eggplant, caneberry, papaya, tree nut group/pistachio, tuberous and corm vegetable group, stone fruit group, guava, beans (dry, snap, lima) and pineapple. Potential use on blueberry, sugar apple, and persimmon.
<i>Acequinocly/TM 413</i> (KANEMITE) (PITON)	Arvesta & Agro-Kanesho	Quinoline	Broad spectrum mite control (no rust mite activity). Unique mode of action Easy on beneficials with long residual activity	Candidate Reduced Risk Product. Pending on pome fruit group, citrus fruit group, tree nuts/pistachio, and strawberry. Potential use on stone fruit group, grape, hop, sugarcane, and unspecified vegetables.
<i>Acetamiprid</i> (ASSAIL) (ADJUST) (PRISTINE)	Bayer Crop Science	Chloronicotinyl	Broad-spectrum control with contact and systemic activity via foliar applications. Excellent on sucking pests like aphids and whitefly.	Reduced Risk Product and OP Alternative. Registered on citrus fruit group, cotton, grape, fruiting vegetable group, Brassica leafy vegetable group, leafy vegetable group, and pome fruit group. Pending foliar use for ASSAIL formulation on potato, tobacco and greenhouse tomato. Pending seed treatment use (ADJUST formulation) on canola and mustard. Potential use on other greenhouse vegetables.
<i>Azadirachtin</i> (NEEMIX) (NIMBECIDINE)	Certis USA PBT International	Extract from neem oil which acts as a hormonal analogue	Disrupts insect molting. Target pests include whitefly, leafminer, and Lepidoptera	Biopesticide. Registered on citrus, pome, stone fruits, grape, berries, cranberry, strawberry, tree nuts, cucurbit vegetables, bulbs vegetables, Brassica leafy vegetables, legume vegetables, fruiting vegetables, root & tuber vegetables, herbs/spices.
<i>Bacillus sphaericus</i> (VECTOLEX)	Valent	Bacteria	Mosquito larval management	Biopesticide. Registered in rice, pasture, stone fruit group, pome fruit group, citrus fruit group and other crops.
<i>Bacillus thuringiensis</i>	Numerous	Bacteria	New strains of Bt are being discovered that have activity against numerous pests.	Biopesticide. Registered on most crops as a spray. Also registered as Plant-Incorporated Protectant in genetically modified cotton, potato, corn and sweet corn.
<i>Beauveria bassiana</i> (MYCOTROL) (NATURALIS)	Emerald Bioagriculture Troy Bio- Sciences	Insect pathogenic fungi	Corn borer, grasshopper, cricket, locust, aphids and whitefly	Biopesticide. Potential registration on unspecified crops
<i>Beauveria brongniartii</i>	Federal Republic of Germany	Insect pathogenic fungi	Targeted for soil dwelling pests	Biopesticide. Potential registration on pome and stone fruit.
<i>Bifenazate</i> (ACRAMITE) (FLORAMITE)	Uniroyal	Carbazate - New mode of action with no cross resistance	Controls spider and European red mites, including eggs and motiles. Provides quick knockdown. Safe on predator mites.	Reduced Risk Product and OP Alternative. Registered on pome fruit group, cotton, grape, hop, nectarine, peach, plum, and strawberry. Pending use, cherry, apricot, fruiting vegetable group, almond, pistachio, pecan/other members of the tree nut group, cucurbit vegetable group, mint, pea, succulent bean, and potato. Potential use on caneberry, wheat, cassava, sweet potato, soybean, avocado, carambola, lychee, papaya, and other member of the stone fruit group.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Insecticides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Uit, Status
<i>Bifenthrin</i> (CAPTURE) (BRIGADE)	FMC	Pyrethroid	Broad spectrum activity on aphids, armyworms, cutworms, flea beetles, mites, corn borers.	Registered on cotton, corn, strawberry, hops, artichoke, cucurbit vegetable group, edible-podded legumes, eggplant, canola, crambe, rapeseed, head and stem Brassica vegetable subgroup, succulent shelled beans/peas vegetable subgroup, caneberry, head lettuce, bell and non-bell pepper, and seed alfalfa. Pending use on citrus fruit group, celery, Florence fennel, rhubarb, celuce, red cardoon, chives, field and greenhouse tomato, sweet potato, potato, banana, pears, tree nuts crop group, pistachio, greenhouse herbs subgroup, spinach, carambola, cilantro, mustard greens and other members of the Brassica leafy vegetable group, garden beet, carrot, dry bean, lentil, dry pea, dry pea, greenhouse pepper, grape, and mayhaw. Potential for field grown herb subgroup, and okra.
<i>Bistrifluron</i> (DBI-3204)	Dongbu Hannong Chemical	Benzoylphenyl urea	Active against lepidopteran pests, whitefly. It acts by inhibiting chitin synthesis (Insect Growth Regulator)	Potential use on apple, Brassica leafy vegetables, tomato, persimmon and other fruit and vegetables.
<i>Buprofezin</i> (APPLAUD)	Nichino America	Thiadiazine - IGR, unique mode of action, inhibits chitin synthesis	Good activity for nymphal stages of leafhoppers, plant hoppers, scales, mealybugs, psylla, and whiteflies. Very safe to bees.	Reduced Risk and OP Alternative. Registered on lettuce, cucurbit vegetable group, almond, banana, citrus fruit group, cotton, grape and tomato. Pending use on stone fruit group, pome fruit group, snap bean, lychee, avocado, pistachio, carambola, longan, guava, lychee, avocado and papaya. Potential use on okra and kiwi.
CHECKMATE CM-F	Suterra	Pheromone	Codling Moth	Biopesticide. Registered on pome fruit group, stone fruit group, and tree nut group.
<i>Chlorfenapyr</i> (PYLONGA)	BASF	Pyrrole	Controls selective leptopteran larva, mites, some aphids, thrips, scale, leafinors	Pending use on greenhouse tomato, greenhouse pepper, and mushroom. Potential for greenhouse strawberry.
<i>Chromafenozide</i> (MATRIC)	Nippon Kayaku & Sankyo	Insect Growth Regulator	Specific to lepidopteran pests, novel ecodyosone agonist.	Potential use of apple, cotton, shallot, rice, tea, soybeans, and other fruit and vegetables.
<i>Chrysoperla carnea</i> (KAGETARO)	Arvesta	Bio-insecticide	Controls aphids	Biopesticide. Potential use on strawberry and pepper.
<i>Cinnamaldehyde</i> (CINNACURE) (CINNAMITE)	Proguard	Natural Product	Aphids, mites and the diseases downy mildew, powdery mildew, botrytis, and brown rots.	Biopesticide. Registered on avocado, peppermint, spearmint, banana, dates, figs, mangoes, papayas, beet greens, chicory, artichokes, blueberry, raspberry, blackberry, gooseberry, currant, Brassica vegetable group, bulb vegetable group, cereal grains, citrus fruit group, cranberry, grape, strawberry, cucurbit vegetable group, fruiting vegetable group, herbs and spice group, hop, sweet corn, pop corn, kiwifruit, leafy vegetable group, legume vegetable group, pasture grass, alfalfa, pistachio, persimmon, pome fruit group, soybean, stone fruit group, meadowfoam, safflower, and tree nut group.
<i>Clofentezine</i> (APOLLO)	Makhteshim-Agan	Tetrazine	Acaricide for eggs of <i>Panonychus ulmi</i> and <i>Tetranychus</i> spp.	Registered on apple, pear, apricot, cherry, peach, nectarine, almond, and walnut. Pending use on grape and persimmon.
<i>Clothianidin</i> (PONCHO) (CLUTCH)	Takada & Bayer Crop Science	Neo-nicotinoid	Contact and stomach activity. It controls plum curculio, aphids, leafhoppers, apple maggot, leafminers, leafrollers, codling moth, and pear psylla	Candidate Reduced Risk and OP replacement. Pending use on apple and pear. Potential use on potato, Brassica leafy vegetable group, tomato, pepper, cucurbit vegetable group, leafy vegetable group, tobacco, cotton, canola, corn, and grape.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Insecticides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Uit, Status
<i>Clove/Cinnamon/Mint Oils (VALORAM II)</i>	<i>Soil Technologies Corp.</i>	<i>Natural Product</i>	<i>Shown to contact kill and repel numerous insect pests</i>	<i>Potential use on all crops.</i>
<i>Cydia pomonella granulose virus (VIROSOFT CP4) (GRANUPOM)</i>	<i>Biotepp & Biobest</i>	<i>Granulosis Virus</i>	<i>Controls Codling moth</i>	Biopesticide. <i>Registered on apple</i>
<i>Cyfluthrin (BAYTHROID)</i>	<i>Bayer Crop Science</i>	<i>Pyrethroid</i>	<i>Controls cabbage looper, potato leafhopper, Colorado potato beetle, European corn borer, flea beetle, potato tuberworm, citrus thrips.</i>	<i>Registered on potato, sweet corn, pepper, tomato, citrus, cotton, alfalfa, radish, sorghum, sugarcane, carrot, sunflower and hop. Pending uses on Brassica leafy vegetable group, soybean, field corn, cereals grains, Southern pea, dry pea, garbanzo bean, pigeon pea, chickpea, grape, lentil, grass, sweet corn, sweet potato, mustard greens, leaf and head lettuce.</i>
<i>Cypermethrin (AMMO)</i>	<i>FMC</i>	<i>Pyrethroid</i>	<i>Activity on cutworms, thrips, leaf hopper, weevils, armyworms, lygus bug, plant bugs, corn earworm, aphids, and beetles.</i>	<i>Registered on cotton, pecans, head lettuce, potato, bulb vegetables, and Brassica leafy vegetables.</i>
<i>Cyromazine (TRIGARD)</i>	<i>Syngenta</i>	<i>Triazine with insecticide growth regulator activity</i>	<i>Leafminers, maggots, fungal gnats.</i>	<i>Registered on cotton, celery, cucurbit vegetable group, leafy vegetable group, mushroom, pepper, tomato, lima bean, bulb/green onion (seed treatment), potato, Chinese cabbage, Chinese mustard, radish, and sweet corn. Pending use on dry bean, Southern pea, black-eyed pea, snap bean, mango, broccoli and cauliflower. Potential use on mustard greens and foliar use on bulb/green onion..</i>
<i>Deltamethrin (DECIS)</i>	<i>Bayer Crop Science</i>	<i>Pyrethroid</i>	<i>Beetles, bugs, Lepidoptera</i>	OP Alternative. <i>Registered on cotton. Pending use on bulb vegetable group, barley, cucurbit vegetable group, head and stem Brassica group, mustard greens, leafy vegetable group, fruiting vegetable group, root and tuber vegetables (except sugarbeet) group, artichoke, tree nut group, pistachio, stone fruit group, pome fruit group, field corn, sorghum, soybean, sunflower, wheat, sweet corn, flax, popcorn, canola, rapeseed, carambola, and litchi. Potential use on olive.</i>
<i>Diflubenzuron (DIMILIN)</i>	<i>Uniroyal</i>	<i>Substituted benzoylurea, Insect Growth Regulator</i>	<i>Wide range of leaf feeding insects.</i>	<i>Registered on citrus, artichoke, mushrooms, soybean, cotton, walnut, rice, rangegrass and pear. Pending on other grasses, pepper, pistachio, stone fruit group (except cherry), tree nut group, mustard greens, barley, wheat, and peanut. Potential use on rhubarb, turnip greens, broccoli, cabbage, cauliflower, collard, eggplant, and lychee.</i>
<i>Dinotofuran (STARKE)</i>	<i>Mitsui & Valent</i>	<i>Nitroguanidine, It is systemic by root uptake and translaminar via foliar applications. Different mode of action than nicotinoide.</i>	<i>Controls aphid, thrips leaf miners codling moth, whitefly, flea beetle, and Colorado potato beetle.</i>	Reduced Risk Product and OP Alternative. <i>Pending use on grape, potato, cotton and leafy vegetable group. Potential use on rice, and other unspecified fruit and vegetable crops.</i>
<i>Emamectin Benzoate (PROCLAIM) (STRATEGY) (DENIM)</i>	<i>Syngenta</i>	<i>Synthetic Avermectin analogue</i>	<i>Effective on larval Lepidoptera (Beet/fall armyworms, cabbage webworms, corn earworms, imported cabbage worm, cabbage looper) and leafminers</i>	OP Alternative. <i>Registered on head and stem Brassica vegetable subgroup, head lettuce and celery. Pending use on cucumbers, fruiting vegetable group, other member of the leafy vegetable group, other members of the Brassica leafy vegetable group, cotton, and turnip tops. Potential use on green onion, lime, peach, blueberry, grape, basil, chive, atemoya, avocado, guava, longan, lychee, mango, papaya, passion fruit, sugar apple, other members of the cucurbit vegetable group, pome fruit and tree nuts.</i>

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Insecticides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Uit, Status
<i>Esfenvalerate (ASANA)</i>	<i>DuPont</i>	<i>Pyrethroid</i>	<i>Broad spectrum control on numerous insect pests</i>	<i>Registered on sugarbeet, head lettuce, mustard greens, broccoli, cabbage, cauliflower, Chinese broccoli, napa cabbage, kohlrabi, mung bean, sorghum, cotton, field corn, pop corn, peanut, soybean, sugarcane, sunflower, apple, stone fruits, pear, almonds, filberts, pecans, walnut, artichoke, carrot, collard, cucumbers, melons, pumpkin, squash, snap beans, dry beans, dry pea, lentil, eggplant, succulent pea, pepper, radish, sweet corn, caneberry, blueberry, and tomato. Pending on kiwifruit, leaf lettuce, kale, turnip greens, passion fruit, pistachio, Brussels sprouts, bok choy, sweet potato, cardoon, and canola. Potential use on carambola and okra.</i>
<i>Ethiprole (RPA 107382)</i>	<i>Bayer Crop Science</i>	<i>Phenylpyrazole</i>	<i>Broad spectrum activity against chewing and sucking insects</i>	<i>Potential use on rice, cotton, alfalfa, peanuts, soybeans, and unspecified fruits and vegetables.</i>
<i>Etoxazole (SECURE) (ZOOM)</i>	<i>Valent (Yashima)</i>	<i>Oxazoline</i>	<i>Insecticide/acaricide for control of <u>Panonychus</u> spp and <u>Tetranychus</u> spp, including hexythiazox resistant mite strains. Inhibition of molting, effective on eggs, larvae, & nymphs.</i>	Reduced Risk Product. <i>Pending use on cotton, strawberry, apple, pear, almond, pecan, hop, and grape. Potential use on seed alfalfa, beans, cucurbits, sweet corn, mint, tropical fruits and other tree nuts. Registered in Japan on fruit crops.</i>
<i>Fenoxycarb (COMPLY)</i>	<i>Syngenta</i>	<i>Non-neurotoxic carbamate - IGR</i>	<i>Fire ants and a wide range of other insects.</i>	<i>Pending use on pome fruits, tree nuts, pasture and citrus.</i>
<i>Fenpropathrin (DANITOL)</i>	<i>Valent</i>	<i>Pyrethroid</i>	<i>Aphids, whitefly, various worms, mites, glassy winged sharpshooter, and stinkbugs.</i>	<i>Registered on cotton, tomato, strawberry, peanuts, cucurbit vegetable group, grape, pome fruit group, citrus fruit group, and head/stem Brassica group. Pending use on currant, soybean, eggplant, pepper, and succulent pea. Potential use on dried pea</i>
<i>Fenpyroximate (FUJIMITE)</i>	<i>Nichino America</i>	<i>Phenoxyppirazole</i>	<i>Controls mites, including two-spotted, European, red and citrus rust mite, and psylla.</i>	Reduced Risk Product. <i>Pending use on cotton, apple, pear, grape, hop, citrus fruit group, tree nut group, and mint. Potential use on grass, strawberry, peach, cherry, watermelon, melon, and tomato. .</i>
<i>Fipronil (REGENT) (ICON)</i>	<i>Bayer Crop Science</i>	<i>Phenylpyrazole - A broad spectrum neurotoxin, unique mode of action</i>	<i>Controls Coleoptera, Lepidoptera, Diptera, Homoptera, Isoptera, and Thysanoptera. Systemic activity, with long residual.</i>	<i>Registered as seed treatment on rice and in furrow treatment on corn. Pending foliar use on cotton, potato, sweet potato, plantain and seed treatment use on bulb onion and corn. Potential use on pepper, apple, cherry, and blueberry.</i>
<i>Fonicamid (F1785/IKI 220)</i>	<i>FMC & ISK</i>	<i>Cyanomethany trifluoromethyl nicotinamide. Different mode of action than other commercial available products</i>	<i>Effective against aphids, thrips, leafhoppers, plant bug and other sucking pests. Provides rapid anti-feeding activity. Non-toxic to beneficials</i>	Candidate Reduced Risk and OP Replacement Product. <i>Pending use on cotton, cucurbit vegetable group, fruiting vegetable group, okra, leafy vegetable group, cilantro, pome fruit group, stone fruit group, and potato.</i>
<i>Fluacrypyrin (TITARON)</i>	<i>Nippon Soda</i>	<i>Methoxyacrylate</i>	<i>Acaricide</i>	<i>Potential use on citrus fruit group and pome fruit group.</i>
<i>Flufenzin</i>	<i>Chinoin</i>		<i>Acaricide</i>	<i>Unknown status on apple, grapes, citrus, cotton and vegetable crops.</i>
<i>Flupyrazolos (SEON BONG)</i>	<i>Dongbu Hannong</i>		<i>Diamondback moth</i>	<i>Potential on Brassica leafy vegetable group.</i>
<i>GALAXY V4C</i>	<i>Analytica</i>	<i>Viral Insecticide</i>		Biopesticide. <i>Pending use on Brassica leafy vegetable group, soybeans, cotton and cereal grains</i>
<i>gamma-Cyhalothrin (PYTECH)</i>	<i>Dow AgroSciences</i>	<i>Pyrethoid</i>	<i>Same use as other pyrethoids, but at lower rate.</i>	<i>Pending on cotton, soybeans, alfalfa, corn, and unspecified vegetables.</i>
<i>Hexythiazox (SAVEY)</i>	<i>Gowan</i>	<i>Carboxamide</i>	<i>Mites</i>	<i>Registered on apples, pears, hops, seed alfalfa, almond, stone fruits, strawberry, cotton, tree nuts, pistachio, peppermint, spearmint, caneberry and cranberry. Pending on date.</i>

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Insecticides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Uit, Status
<i>Hydramethylnon</i> (AMDRO)	BASF	<i>Amidinohydrazone</i>	<i>Slow acting insecticide, formulated as a bait that is effective on ants</i>	<i>Registered on grass. Pending use on pineapple, coffee, and tropical fruit.</i>
<i>Imidacloprid</i> (ADMIRE) (PROVADO) (GAUCHO) (MARATHON II)	Bayer Crop Science	<i>Chloronicotinyl</i>	<i>Primarily effective against sucking insects (aphid, whitefly, scale, etc.) as well as beetles and grubs. Controls numerous pests that are resistant to insecticides.</i>	OP Alternative. <i>Registered on cotton, potato, fruiting vegetable group, Brassica leafy vegetable group, leafy vegetable group, canola, grapes, hops, mango, pome fruit group, cucurbit vegetable group, tuberous and corm vegetable group, upland watercress, field corn, pecan, edible legumes, celery, citrus, cilantro, sweet corn, turnip greens, beet greens, and sugarbeet. Pending use on peach and other members of the stone fruit group, almond, cranberry, blueberry, herb group, artichoke, strawberry, dry bean group, garden beet, carrots, peas, turnip roots, watercress, avocado, banana, caneberry, coffee, guava, papaya, pomegranate, radish and greenhouse tomato. Potential use on okra, passion fruit, rutabaga, and peanut.</i>
<i>Indian Meal Moth Granulosis Virus</i> (FRUITGUARD-V) (NUTGUARD-V)	AgriVir, LLC	<i>Virus</i>	<i>Indian meal moth</i>	Biopesticide. <i>Registered on dried fruit and nuts</i>
<i>Indoxacarb</i> (AVAUNT) (STEWARD)	DuPont	<i>Oxadiazine- Unique mode of action that inhibits sodium ion entry into nerve cells.</i>	<i>Controls most major Lepidopteran pest species. Possibly controls plant bugs. Soft on beneficials so it is a good fit with IPM.</i>	Reduced Risk Product. <i>Registered on apple, pear, head and stem Brassica vegetable subgroup, cotton, fruiting vegetable group, head/leaf lettuce, and sweet corn. Pending use on leafy Brassica vegetable subgroup, turnip greens, grape, cranberry, sugarbeet, alfalfa, cucumber, sour cherry, mint, peanut, potato, Southern pea and soybean. Potential use on spinach, blueberry, caneberry, tree nut group, other members of the cucurbit vegetable group and other members of the stone fruit group.</i>
<i>Iron Phosphate</i> (SLUGGO)	W. Neudoff	<i>Iron salt</i>	<i>Slugs and snails</i>	Biopesticide. <i>Registered on strawberry, caneberry, cantaloupe, cucumbers, squash, eggplant, and asparagus.</i>
<i>Jojoba Oil</i> (DETUR/E-RASE)	IJO Products	<i>Natural Product</i>	<i>Controls whitefly and powdery mildew</i>	Biopesticide. <i>Registered on grape.</i>
<i>Kaolin</i> (SURROUND)	Engelhard Corporation	<i>Clay</i>	<i>Various insect and mite pest.</i>	Biopesticide. <i>Registered on apple, pear, stone fruit, citrus, caneberry, blueberry, grape, fruiting vegetable group, onion, and cucurbit vegetable group. Pending on olive</i>
<i>Lambda-Cyhalothrin</i> (KARATE) (WARRIOR)	Syngenta	<i>Pyrethroid</i>	<i>Broad spectrum insect control</i>	OP Alternative. <i>Registered on olive, Brassica leafy vegetables, field corn, pop corn, sweet corn, cotton, head lettuce, bulb vegetables, peanut, rice, sorghum, soybean, sunflower, tomato, tomatillos, wheat/triticale. Pending on tree nut group, potato, sweet potato, other members of the legume vegetable group, alfalfa, canola, flax, small grains, sugarcane, stone fruit, pome fruit, and tree nuts. Potential use on avocado (domestic), pineapple, and carambola</i>
<i>Lufenuron</i> (MATCH)	Syngenta	<i>Benzoylurea (IGR chitin inhibitor)</i>	<i>Whitefly, thrips, Colorado potato beetle, and lepidopterous insects.</i>	<i>Potential use on unspecified vegetables and cotton. Registered in Japan and Italy.</i>
<i>Metarhizium anisopliae</i> (GREENGUARD)	Bio-Care	<i>Metarhizium anisopliae</i>	<i>Locust</i>	Biopesticide. <i>Potential use on sugarcane</i>
<i>Metarhizium anisopliae</i> (TAERAIN)	Taensa	<i>Metarhizium anisopliae</i>	<i>Controls whitefly, thrips, and mites.</i>	Biopesticide. <i>Potential use on vegetables, fruit and nut trees.</i>

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Insecticides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Uit, Status
<i>Methoxyfenozide</i> (INTREPID) (RUNNER)	Dow AgroSciences	<i>Diacylhydrazine –</i> (Molt accelerating compound)	<i>Similar to tebufenozide in that it only controls Lepidoptera larvae. Better on budworm/bollworm, leafminers and diamondback moth. Excellent fit with IPM programs.</i>	Reduced Risk Product and OP Alternative. Registered on pome fruit group and cotton. Pending on artichoke, Brassica leafy vegetable group, field and sweet corn, fruiting vegetable group, leafy vegetable group, grape, lychee, logan, Spanish lime, ramubatan, pulasan, stone fruit group, tree nut group, edible legume group, sugarbeet, radish, carrot and other members of the root vegetable subgroup, turnip greens, cucurbit vegetable group, cranberry, seed grasses, mint, soybean, papaya, okra, and mango. Potential use on citrus fruit group, rice, blueberry, alfalfa, herb subgroup, atemoya, avocado, guava, sorghum, sugar apple, passion fruit, peanut, and pineapple.
<i>Milbemectin</i> (KOROMITE) (MESA)	Sankyo & Gowan	<i>Macrocyclic lactone</i>	<i>Excellent miticide, also controls aphids, leafminers, thrips, leafhoppers</i>	Reduced Risk Product and OP Alternative. Pending use on pome fruit group, citrus fruit group, avocado, hop, lychee, strawberry, cotton, stone fruit group, and nut crop group.
<i>Novaluron</i> (RIMON 10 EC) (RIMON 7.5% WDG)	Makhteshim- Agan & Uniroyal	<i>Insect Growth Regulator (chitin synthesis inhibitor)</i>	<i>Effective against Lepidoptera, mealy bugs, silver leaf whitefly, Western flower thrips, leaf miner, and some mites. Strictly a contact material, no systemic activity.</i>	Reduced Risk Product. Pending on cotton and pome fruit group. Pending use on tuber and corm vegetable subgroup, and head/stem Brassica. Potential use on stone fruit group, corn, citrus fruit group, snap beans, caneberry and leafy Brassica. Registered for non-food greenhouse uses.
<i>Noviflumuron</i> (XDE007)	Dow AgroSciences			Pending use as termite bait.
<i>Olive Fly Attract and Kill</i>	Thermo Trilogy	<i>Pheromone</i>	<i>Olive fruit fly</i>	Pending use in olive.
<i>PAVOIS</i> <i>Granulosis virus</i>	Bayer Crop Science	<i><u>Carpocapsa</u> spp.</i>	<i>Product controls two generations of susceptible insects</i>	Biopesticide. Potential use on pome fruit and walnut (international registrations approved)
<i>Pymetrozine</i> (FULFILL)	Syngenta	<i>Pyridine azomethine</i>	<i>Controls sucking insects (aphids/whiteflies). The product has a rapid knockdown on aphids if direct sprays contact them.</i>	Reduced Risk Product and OP Alternative. Registered on fruiting vegetable group, cucurbit vegetable group, tuberous/corm vegetable group, cotton, leafy vegetable group, hops, Brassica vegetable group, turnip greens, and pecan. Pending use on, asparagus. Potential use on greenhouse lettuce, greenhouse cucumber, greenhouse tomato, barley.
<i>Pyridaben</i> (PYRAMITE)	BASF	<i>Pyridazinone</i>	<i>Activity on mite, whiteflies, aphids, mealybugs, leafhoppers, and thrips. A new class of insecticide offering long-term residual control. Good for IPM/ resistance management.</i>	Registered on apple, pear, citrus fruit group, tree nuts group/pistachio, apricot, cherry, grape and cranberry. Pending use on stone fruit group, strawberry, greenhouse tomato, papaya, and hop. Potential use on guava, greenhouse transplants, greenhouses pepper, pigeon pea, cantaloupe, greenhouse cucumber, mayhaw, caneberry subgroup, avocado, carambola, lychee, mango, and mint.
<i>Pyridanyl</i> (S 1812)	Valent	<i>Pyridine with unknown mode of action</i>	<i>Good activity against lepidoptera. Effective against pyrethroid resistant insects. Safe on beneficials.</i>	Potential OP Replacement Product. Pending use on cotton, and fruiting vegetables. Potential use on head and stem Brassica subgroup and leafy vegetable group
<i>Pyriproxyfen</i> (KNACK) (DISTANCE) (ESTEEM)	Valent	<i>Pyridine (IGR-selective juvenile hormone analog)</i>	<i>Controls scales, whiteflies, thrips, pear psylla, codling moth, and ants. It is a juvenile hormone mimic that is slow acting with a long residual, safe to beneficial insects, non-toxic to man and wildlife. Effective on eggs and immature stages, not effective on adults. Excellent for IPM programs.</i>	Reduced Risk Product and OP Alternative. Registered on cotton, pome fruit group, citrus fruit group, fruiting vegetable groups, and tree nuts. Pending use on stone fruit, cucurbit vegetable group, Brassica vegetable group, olive, edible legumes, blueberry and other members of the bushberry subgroup, longan, Spanish lime, rambutan, pulasan; feijoa, jaboticaba, wax jambu, starfruit, passionfruit, and acerola; lingonberry, juneberry, salal, lychee, sugar apple, greenhouse tomato, okra, grape, pistachio, strawberry and succulent bean.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Insecticides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Uit, Status
Rosemary Oil (HEXACIDE)	EcoSmart Technologies	Natural Product	Kills scale insects on contact, minimal impact on beneficials	Biopesticide. Potential use on all crops.
Spinosad (SUCCESS) (SPINTOR)	Dow AgroScience	Macrocyclic lactone	Controls Coleoptera, Diptera, Hymenoptera, Isoptera, Lepidoptera, Thysanoptera, Siphonoptera, and mites. Has low environmental impact, good residual activity, and is safe to many beneficial insects making it ideal for use in IPM programs.	Reduced Risk Product and OP Alternative. Registered on turnip tops, spinach, tree nut group, pistachio, pome fruit group, blueberry and other members of the bushberry subgroup, cranberry, garden beets, juneberry, lingonberry, okra, salsal, strawberry, millet, popcorn, grain amaranth, buckwheat, barley, rye, oat, triticale, cilantro, acerola, artichoke, asparagus, atemoya, avocado, guava, longan, lychee, mango, papaya, passion fruit, sugar apple, ti palm, watercress, leafy vegetable group, Brassica leafy vegetable group, potato, edible legumes, soybean, cucurbit vegetable group, stone fruit group, corn, sweet corn, sorghum, and sugarbeet, and garden beet. Pending on caneberry, grape, stored grain, grass seed, alfalfa, basil and other members of herb subgroup, banana, coffee, fig, mint and peanut.
Spirodiclofen (BAJ 2740) (ENVIDOR)	Bayer Crop Science	Tetronic acid	Acaricide that is very active on eggs, larvae, and quiescent stage of <u>Panonychus</u> , <u>Phyllocoptruta</u> , <u>Brevipalpus</u> , <u>Tetranychus</u> species.	Potential use on citrus fruit, pome fruit, stone fruit, grape, and tree nuts.
<u>Spodoptera exigua</u> Nuclear Polyhedral virus	Biosys	Viral Insecticide	<u>Spodoptera</u> larvae	Biopesticide.
Sucrose Octanoate Esters		Biochemical Sugar	Being evaluated for control for glassy-winged sharpshooter	Pending use on grape. Potential use on all crops.
Tebufenozide (CONFIRM) (RH-5992)	Dow AgroSciences	Diacylhydrazine – (Molt accelerating compound)	Controls only Lepidoptera larvae. Safe to beneficial insects with low environmental impact. Excellent for IPM programs.	Reduced Risk Product and OP Alternative. Registered on pome fruit group, cotton, walnuts, pecans, blueberry, caneberry, cranberry, sugarcane, turnips, canola, sugarcane, and tree nuts/pistachio group. Pending use on grape, soybean, sweet potato and other members of the tuberous/corm subgroup, lychee, longan, peanuts, rice, sugar beet, grass, legume vegetable group, sunflower, garden beets, non-grass animal feed group and citrus fruit group.
Tebupirimphos (AZTEC*) *A combination product with cyfluthrin	Amvac	Organophosphate and Pyrethroid	A soil insecticide, active against a wide range of insets, including corn rootworm, wireworm, white grub and seed corn maggot.	Registered on field, sweet and popcorn. Potential use on sugarcane, sweet potato and cabbage
Tefluthrin (FORCE)	Syngenta	Pyrethroid	Controls a wide range of soil insects including rootworms, cutworms, wireworms and grubs.	Registered on field corn, pop corn and sweet corn. Potential use on sweet potato.
Thiamethoxam (ACTARA) (PLATINUM) (ADAGE 5 FS) (CENTRIC)	Syngenta	Second-generation neonicotinoid. Systemic in plant by root uptake and transport in xylem	Broad-spectrum activity against soil dwelling, sucking and some chewing pests. Effective against aphids, whitefly, thrips, leafhopper and certain beetles. Being marketed for seed, soil and foliar treatments.	OP Alternative. Registered as seed treatment use on barley, cotton, wheat, canola, and sorghum. Registered as foliar use on fruiting vegetable group, cucurbit vegetable group, pome fruit group, potato and other members of the tuberous/corm vegetable group, tobacco and cotton. Pending use on citrus, Brassica vegetable group, leafy vegetable group, sunflower, peanut, pecan, barley, artichoke, hops, edible legumes (seed treatment only), corn (seed treatment), carrot, radish and other members of root subgroup, strawberry, mint, caneberry, blueberry, cranberry and stone fruit group. Potential use on herb subgroup and coffee.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Insecticides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Uit, Status
<i>Thiacloprid</i> (CALYPSO) (ALANTO) (BARIARD)	Bayer Crop Science	Second generation neonicotinoid.	Broad spectrum systemic control of sucking and chewing pests including aphids, whiteflies, leafhoppers, plant bugs, pear psylla, weevils, fruit flies, oriental fruit moth, leafminers and codling moth. <u>Very safe to bees.</u>	Pending use on cotton, apple, pear, blueberry, and stone fruit group. Potential use on potato, grape, cucurbit vegetable group, peppers, rice, and nut crops.
<i>Thiocyclam</i> (EVISECT)	Arvesta			Potential use on sugarcane, leafy vegetable group, Brassica leafy vegetable group, cucurbit vegetable group, fruiting vegetable group.
<i>Thymol</i> (APR LIFE VAR)		Thyme oil	Used to control varroa mites on bees	Biopesticide. Pending use on honey and bees wax.
<i>Tolfenpyrad</i> (HACHIHACHI)	Mitsubishi	Pyrazole	Effctive against diamonback moths, other moths, thrips and aphid.	Potential use on Brassica leafy vegetable group, cucurbit vegetable group and other unspecified crops
<i>Tolylfluaniid</i> (EUPAREN MULTI)	Bayer Crop Science Mitsubishi	Sulfenamid	Major targets are fungal pathogens (Fungicides). Also controls mites, lepodoptera, and hemiptera.	Potential use on apples, grapes and hops.
<i>Verticillium lecanii</i> (MYCOTAL)	Arvesta	Bio-insecticide	Effective against whitefly	Biopesticide. Potential use on tomato, cucumbers and pepper.
VIROSOFT Viral Insecticide	Biotepp	<u>Mamestra configurata</u> Granulosis virus	Can be applied as a preventative treatment at planting or a curative foliar treatment for berthia armyworm	Biopesticide. Registered on canola.
VIRTUOSO	AgraQuest	Streptomyces based bio-insecticide	Broad spectrum activity against selective lepidoptera, flea, flies and mites	Biopesticide. Potential use on unspecified crops.
Zeta-cypermethrin (FURY) (MUSTANG)	FMC	Pyrethroid	Controls cutworms, thrips, and armyworms, ect.	OP Alternative. Registered on cotton, Brassica leafy vegetable group, leafy vegetable group, bulb vegetable group, pecan, sugar beet, sugarcane, field corn, popcorn, alfalfa, sweet corn, rice, legume vegetable group, fruiting vegetable group, sorghum, and wheat. Pending uses on root and tuber crop group, cucurbit vegetable group, peanut, cilantro, barley and turnip greens. Potential use on basil and other members of the herb subgroup, citrus fruit group.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

FUNGICIDES

Fungicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Acibenzolar</i> (ACTIGARD) (BLOCKADE)	Syngenta	Benzothiadiazole, (Systemic Acquired Resistance Inducer)	Induces resistance to Blue mold, bacterial diseases, Downy Mildew, <u>Sclerotinia</u>	Registered on fruiting vegetables, Brassica leafy vegetables, leafy vegetables, banana, and tobacco. Pending use on cucurbit vegetable, turnip greens and cilantro ,
AE C638206	Bayer Crop Science	Acylpicolide-limited cross resistance potential	Active against <u>Phytophthora</u> , <u>Pythium</u> , <u>Plasmopora</u> , <u>Peronospora</u> , <u>Bremia</u> and <u>Pseudoperonospora</u> .	Candidate Reduced Risk Product. Pending use on root and tuber vegetables, Brassica leafy vegetables, leafy vegetables, bulb vegetables, fruiting vegetables and cucurbit vegetables. Potential use on hops.
<u>Agrobacterium</u> <u>radiobacter</u> (GALLTROL-A)	AgBioChem	Bacteria	Control of hairy root and root mat, crown gall	Biopesticide. Registered on stone fruit group, grape, almond, walnut, pecan, raspberry, blackberry, blueberry and cranberry.
<u>Ampelomyces quisqualis</u> isolate M-10 (AQ 10)	Ecogen	Fungus	Hyperparasite of Powdery mildew	Biopesticide. Pending registration on all crops.
<u>Aspergillus flavus</u> AF 36	Circle One Global & USDA	Fungus	Competitive inhibition of aflatoxin, production by natural <u>Aspergillus</u> strain	Biopesticide. Pending use on cotton and peanut.
<i>Azoxystrobin</i> (HERITAGE) (QUADRIS) (ABOUND)	Syngenta	Strobilurin	Broad spectrum of pathogens of fungi: <u>Cladosporium</u> , <u>Venturia</u> , <u>Botryosphaeria</u> , <u>Mycosphaerella</u> , <u>Pyrenophora</u> , <u>Puccinia</u> , <u>Pyricularia</u> , <u>Plasmopara</u> , <u>Guignardis</u> , <u>Pseudopeziza</u> , <u>Alternaria</u> , <u>Sphaerotheca</u> , <u>Erysiphe</u> , <u>Leveillula</u> , <u>Septoria</u> , <u>Pythium</u> , <u>Uncinula</u> , <u>Rhizoctonia</u> etc.	Reduced Risk Product. Registered on tree nut group/pistachio, cucurbit vegetable group, stone fruit group, banana, canola, grape, peanut, pecan, potato, rice, tomato, cotton, bulb vegetable group, cucurbit vegetable group, peanut, soybean, leafy vegetable group, root and tuber vegetable group, acerola, atemoya, biriba, black sapote, leafy Brassica subgroup, blueberry and other members of the bushberry subgroup, junberry, lingonberry, avocado, canistel, cherimoya, custard apple, eggplant, feijoa, grass seed, guava, ilama, jaboticaba, jackfruit, longan, loquat, lychee, mamey sapote, mango, okra, passion fruit, pawpaw, papaya, bell/non-bell pepper, peppermint, persimmon, pulasan, rambutan, salal, sapodilla, soursop, Spanish lime, spearmint, star apple, starfruit, strawberry, sugar apple, tamarind, turnip (tops), watercress, wax jambu, and white sapote, dry bean and pea, succulent bean and pea. Pending use on sunflower, coffee, cranberry, caneberry, herb subgroup, head and stem Brassica subgroup, artichoke, asparagus, citrus (post harvest) and hop. Potential use on stevia
<i>Bacillus pumilus</i> strain 2808 (SONATA AS)	AgraQuest	Microbial	<u>Botrytis</u> , downy and powdery mildews, rusts, <u>Sclerotinia</u> blight, and rots	Biopesticide. Pending use on Brassica leafy vegetables, bulb vegetables, cereal grains, cucurbit vegetables, fruiting vegetables, grape, grass and grass seed, hop, leafy vegetables, legume vegetables, mint, peanut, pome fruit, root/tuberous vegetables, strawberry and stone fruit. Potential use on all crops.
<i>Bacillus pumilus</i> GB 34	Gustafson	Microbial	Suppression of <u>Rhizoctonia</u> & <u>Fusarium</u>	Biopesticide. Pending use on soybean as seed treatment.
<i>Bacillus subtilis</i> strain QST 713 (SERENADE) (RHAPSODY)	AgraQuest	Microbial- Protectant with SAR activity	Controls <u>Botrytis</u> , powdery and downy mildews, early blight, bacterial spot.	Biopesticide. Registered on grape, cucurbit vegetables, leafy vegetables, pepper, tomato, cherry, walnut, hop, peanut, potato, apple, and pear. Potential uses on other fruits, nut and vegetables.
<i>Bacillus subtilis</i> (TAEGRO)	Taensa	Microbial	Disease suppression	Biopesticide. Potential use on vegetables and potato

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Fungicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Bacillus pumilus</i> (GB 34)	Gustafson	Microbial	<u>Rhizoctonia</u> and <u>Fusarium</u>	Biopesticide. Pending use in soybean
<i>Bacillus subtilis</i> strain GB03	Growth Products Ltd	Microbial		Biopesticide. Pending use of apples, broccoli, celery, citrus, cotton, grapes, head lettuce, leaf lettuce, melons, onions, potatoes, herbs and spices, strawberries, sunflower, and tomato.
<i>Bacteriophages</i> (AGRIPHAGE)	Agriophi		Manages bacteria spot and bacteria speck	Biopesticide. Pending use on tomato and pepper
BAS 516	BASF	Multi active ingredients	Broad-spectrum activity on <u>Anthraco</u> se, <u>Alternaria</u> , downy mildew, powdery mildew, <u>Botrytis</u> , <u>Sclerotinia</u> and <u>Monilinia</u> .	Candidate Reduced Risk Product. Pending use on pome fruit group, cucurbit vegetable group, pea, dry bean, hop, sunflower, mint, peanut, grape, potato, carrot/ other members of the root vegetable group, bulb vegetable group, stone fruit group, tree nuts/pistachio group, strawberry, berry crops, celery, spinach and avocado.
<i>Benthiavalicarb</i> (KIF-230)	Bayer Crop Science& Kumiai		Controls downy mildew	Potential use on Brassica leafy vegetables, leafy vegetables, fruiting vegetables, cucurbit vegetables, potato and grape.
<u>Candida oleophila</u>	Ecogen	Biofungicide	Post-harvest diseases	Biopesticide. Potential use in fruit crops
<u>Candida saitoana</u> (BIOCURE)	Micro Flo	Biofungicide	Post-harvest disease control in fruits, both preventative and curative activity	Biopesticide. Pending use on apple and citrus fruit group. Potential use in unspecified crops.
Chitosan (ELEXA-4)	SafeScience	Carbohydrate-Chitin based product, plant defensive booster	Downy and powdery mildew, gray mold and <u>Botrytis</u>	Biopesticide. Registered on grapes, strawberry, tomato, pome fruit, stone fruit, cucurbit vegetables, and grapes. Pending use on other fruiting vegetables.
Cinnamaldehyde (CINNACURE) (CINNAMITE)	Proguard	Natural Product	Downy mildew, powdery mildew, botrytis, brown rots, aphids and mites	Biopesticide. Registered on avocado, peppermint, spearmint, banana, dates, figs, mangoes, papayas, beet greens, chicory, artichokes, blueberry, raspberry, blackberry, gooseberry, currant, Brassica vegetables, bulb vegetables, cereal grains, citrus, cranberry, grape strawberry, cucurbit vegetable, fruiting vegetables, herbs and spice, hop, sweet corn, pop corn, kiwifruit, leafy vegetables, legume vegetables, pasture grass, alfalfa, pistachio, persimmon, pome fruit, soybean, stone fruit, meadowfoam, safflower, and tree nuts.
<u>Coninthyrium minitans</u> (CONTANS WG)	Prophyta Encore Technologies	Fungus	Controls <u>Sclerotinia sclerotium</u> and <u>S. minor</u>	Biopesticide. Registered on peanut and fruit crops. Pending use on canola, lettuce, endive, celery, and beans. Potential use on sunflower, pea, chicory, and carrot.
Copper Octanoate (NEU 1140F)	W. Neudorff	Copper Octanoate	Downy mildew, powdery mildew, blue mold, white rust, anthracnose	Registered on beans, peas, beets, broccoli, Brussels sprouts, cantaloupes, cucumbers, pumpkins, squash, carrot, celeriac, celery chicory, chive, corn, currant, gooseberry, eggplant, pepper, tomato, endive, lettuce, garlic, leek, onion, shallots, ginseng, grape, hop, kale, kohlrabi, potato, quince, spinach, chard, strawberry, sunflowers, and turnip
Cyazofamid (BAS 545F) (RANMAN)	ISK Biosciences and BASF	Cyanoimidazole – Inhibitor of mitochondrial electronic transport	Oomycete and Plasmodiophomycetes (late blight & downy mildew)	Reduced Risk Product. Pending on potato, tomato, cucurbit vegetable group and pepper. Potential use on, grape, onions, lettuce, Chinese cabbage and rice.
Cymoxanil (CURZATE)	DuPont	Acetamide	Downy mildew, late blight, <u>Phytophthora</u> , <u>Plasmopara</u> , <u>Pseudoperonospora</u>	Registered on potato and tomato. Pending use on hop. Potential use on lychee.
Cyproconazole (ALTO)	Syngenta	Triazole	Coffee rust	Registered on coffee

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Fungicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Cyprodinil</i> (VANGARD)	<i>Syngenta</i>	<i>Anilinopyrimidine</i>	<i>Ascomycetes and Deuteromycetes such as: <u>Botrytis</u>, <u>Alternaria</u>, <u>Monilinia</u>, <u>Venturia</u>, <u>Pseudocerosporella</u>, <u>Pyrenophora</u>, <u>Septoria</u>, <u>Erysiphe</u>, <u>Erysiphe</u>, <u>Rhynchosporium</u> <u>Glomerella</u>, <u>Coccomyces</u>, <u>Colletotrichum</u></i>	Reduced Risk Product. Registered on almonds, grapes, pome fruit group, and stone fruit group.
<i>Cyprodinil/Fludioxonil</i> (SWITCH)	<i>Syngenta</i>	<i>Anilinopyrimidine and Phenylpyrrole</i>	<i>Controls Botrytis, Alternaria and brown rot</i>	Reduced Risk Product. Registered on strawberry, bulb onion, and green onion. Pending use on pistachio, blueberry and other members of the bushberry subgroup, head and leaf lettuce, carrot, Brassica leafy vegetable group, lychee, beans (dry, snap, lima), grape, sweet corn, pistachio, caneberry, tomato, watercress, chives, and basil. Potential use on asparagus, atemoya, avocado, carambola, guava, mango, mint, papaya, mamey sapote, sugar apple, citrus fruit group, cucurbit vegetable group, parsley, celery, and other members of the herb subgroup.
<i>Diallyl Sulfide</i> (ALLI-UP)	<i>UAP/Platt</i>	<i>Diallyl sulfides, classified as biochemical</i>	<i>White rot</i>	Biopesticide. Pending on onion, garlic and shallot
<i>Difenoconazole</i> (DIVIDEND)	<i>Syngenta</i>	<i>Triazole</i>	<i>Smuts, bunts, <u>Aspergillus</u>, <u>Fusarium</u>, <u>Penicillium</u>, <u>Septoria</u>, <u>Cochliobolus</u>, <u>Pyrenophora</u>, <u>Pseudocercospora</u>, and <u>Gaeumannomyces</u></i>	Registered on banana, wheat, barley, and rye as seed treatment and canola. Pending use on sweet corn, and seed piece treatment on arracacha, yam and sweet potato. Potential use on garlic.
<i>Dimethomorph</i> (ACROBAT)	<i>BASF</i>	<i>Cinnamic acid derivative</i>	<i>Downy mildew, late blight, <u>Phytophthora</u>, <u>Plasmopara</u>, <u>Pseudoperonospora</u> <u>Bremia</u>, and <u>Peronospora</u>. Should be mixed with other fungicides for resistance management.</i>	Registered on potato, hop, grape, and tomato. Pending use on turnip greens, bulb vegetable group, Brassica leafy vegetable group, head and leaf lettuce, cucurbit vegetable group, taro, cereals, pepper, and lima beans. Potential on grape, atemoya, papaya and sugar apple.
<i>Dimoxystrobin</i> (BAS 505F)	<i>BASF</i>	<i>Strobilurin</i>		Potential use on vegetables
<i>Dithianon</i> (DELAN)	<i>BASF</i>	<i>Quinone</i>	<i>Scab, downy mildew, rust, leaf spot,</i>	Pending on pome fruit and hop
<i>Epoxiconazole</i> (OPUS)	<i>BASF</i>	<i>Triazole</i>	<i>Leaf spots, powdery mildew, black spots</i>	Potential use on coffee and banana.
<i>Ethaboxam</i> (GUARDIAN)	<i>L G Chemicals</i>	<i>Thiazole carboxamide</i>	<i>Useful for grape downy mildew, potato and tomato late blight, pepper blight and cucumber downy mildew. Preventive and curative activity</i>	Potential use on grapes, potato, fruiting vegetable group, cucurbits vegetable group, Brassica leafy vegetable group, leafy vegetable group, edible legumes and other crops.
<i>Famoxadone</i> (FAMOXATE) (EQUATION) (CONTACT)	<i>DuPont</i>	<i>Oxazolidinedione</i>	<i>Broad-spectrum fungicide, including early blight, downy mildews and other ascomycetes. Can be combined with cymoxanil to pick up late blight.</i>	Candidate Reduced Risk Product. Pending use on potato, tomato and other members of the fruiting vegetable group, bulb vegetable group, grapes, cucurbit vegetable group, and hop. Potential use on spinach, head/leaf lettuce, carrot, citrus fruit group, apple, pecan, almond, mango, papaya, strawberry, chickpea, snap bean, caneberry, and Brassica leafy vegetable group

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Fungicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Fenamidone</i> (REASON)	Bayer Crop Science	Imidazolinone (Respiration Inhibitor)	Foliar protectant and curative activity against Oomycete fungi. Also effective against ascomycete and <u>Alternaria</u> . Inhibits electronic transport	Candidate Reduced Risk Product. Pending use on potato, tomato, onions and other bulb vegetable group members, sunflower, wheat, cucurbit vegetable group and lettuce. Potential use on pepper and fruiting vegetable group, citrus fruit group, Brassica leafy vegetable group, other leafy vegetable group, and grape.
<i>Fenbuconazole</i> (INDAR) (ENABLE)	Dow AgroSciences	Triazole	Powdery mildew, rusts, apple scab, brown rot, cotton ball, mummy berry (<u>Monilinia</u> spp.), smuts, bunts, <u>Cladosporium</u> , <u>Mycosphaerella</u> , <u>Cercospora</u> , <u>Septoria</u> , <u>Rhizoctonia</u> , <u>Pyrenophora</u> , <u>Helminthosporium</u> & related genera, and <u>Colletotrichum</u> sp.	Registered on pecans, bananas and stone fruit (except plum). Pending use on grapefruit, blueberry, cranberry and pepper. Potential on celeriac, Swiss chard, mustard greens, apple and watercress.
<i>Fenhexamid</i> (ELEVATE)	Arvesta	Hydroxyanilide	Non-systemic protectant fungicide that is effective against <u>Botrytis cinerea</u> , <u>Monilina</u> , <u>Sclerotinia sclerotiorum</u> of lettuce.	Reduced Risk Product. Registered on grape, strawberry, almond, stone fruit group, caneberry subgroup, bushberry subgroup, juneberry, lingonberry, salal, and pistachio. Pending use on fruiting vegetable group, citrus fruit group, tomato, pepper, greenhouse cucumbers, ginseng, head/ leaf lettuce, and post harvest uses on stone fruit group, pome fruit group, kiwifruit, and pomegranate.
<i>Fenpropimorph</i>	BASF	Morpholine	Controls powdery mildew, rust, <u>Helminthosporium</u> , <u>Rhynchosporium</u> , <u>Septoria</u> , etc.	Potential use on banana, sugar beet and cereals (international registrations)
<i>Fluazinam</i> (OMEGA)	Syngenta & ISK	Pyridinamine	Broad spectrum disease control: <u>Alternaria</u> , <u>Botrytis</u> , <u>Cladosporium</u> , <u>Colletotrichum</u> , <u>Phytophthora</u> , <u>Plasmopara</u> , <u>Rhizoctonia</u> , <u>Sclerotinia</u> , <u>Venturia</u> , <u>Streptomyces</u> , and some mites.	Reduced Risk Product. Registered on peanut, potato and grape. Pending use on apple. Potential use on edible legumes, strawberry, lettuce, onion, citrus, and pome fruit.
<i>Fludioxonil</i> (MAXIM) (SCHOLAR)	Syngenta	Phenylpyrrole	<u>Fusarium</u> , <u>Helminthosporium</u> , <u>Rhizoctonia</u> , <u>Aspergillus</u> , <u>Alternaria</u> , <u>Ascochyt</u> , <u>Pyrenophora</u> , <u>Tilletia</u> , <u>Sclerotinia</u> , and <u>Septoria</u>	Reduced Risk Product. Registered on most crops as seed treatment. Pending post harvest use on yam, sweet potato, asparagus, stone fruit, kiwifruit, pome fruit group, pomegranate, citrus fruit group. Pending drip irrigation application on cantaloupe and watermelon.
<i>Fluquinconazole</i> (JOCKEY) (CASTELLAN)	Bayer Crop Science	Triazole	Controls Take-All, rust, and a wide range of Ascomycetes diseases.	Potential use in cereals (pending international use).
<i>Fluxastrobin</i> HEC 5725	Bayer Crop Science	Strobilurin		Potential use on wheat and barley
<i>Flutolanil</i> (MONCUT)	Gowan and Nichino America	Benzamide	Rusts, sheath blight, and other diseases caused by <u>Rhizoctonia</u> ,	Registered on rice, peanut and potato.
<i>Fosetyl-AL</i> (ALIETTE)	Bayer Crop Science	Aluminum phosphate	Controls <u>Phytophthora</u> diseases, <u>Alternaria</u> diseases and Downy mildew.	Registered on asparagus, avocado, blueberry, Brassica leafy vegetable group, caneberry, citrus fruit group, cucurbit vegetable group, ginseng, hops, leafy vegetable group, pineapple, bulb onions, pome fruit group, strawberry, tomato, banana, grape, cranberry and macadamia. Pending on succulent pea, bushberry subgroup, leek, green onion, turnip roots and turnip greens.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Fungicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Glutamic Acid</i> (AUXI GRO)	<i>Emerald</i> <i>Bioagriculture</i>	<i>Glutamic acid</i>	<i>Controls brown rot and suppresses shot hole</i>	Biopesticide. Registered on grape, almond and stone fruit group. Pending use on all crops.
<u><i>Gliocladium catenulatum</i></u> <i>Strain J1446</i> (PRESTOP)	<i>Kemira Agro</i>	<i>Fungus</i>	<i>Recommended for control of <u>Pythium</u> and <u>Rhizoctonia</u></i>	Biopesticide. Registered on unspecified vegetable crops
<i>Harpin Protein</i> (MESSENGER)	<i>Eden</i> <i>Bioscience</i>	<i>Protein which switches natural plant defenses in plant</i>	<i>Bacterial leaf spot wilt, blight, and fungal diseases such as botrytis, brunch rot, and powdery mildew</i>	Biopesticide and Methyl Bromide Replacement. Registered on tomato, pepper, wheat, strawberry, grape, cucumber, melon, rice, and apple. Pending use on banana, cotton, and peanut. Potential use on all other crops.
<i>Hexaconazole</i> (PROSEED)	<i>Syngenta</i>	<i>Triazole</i>	<i>Controls loose smut and common root rot via seed treatment</i>	Potential use on wheat and barley (International registration)
<i>Hydrogen peroxide</i> (OXIDATE)	<i>Bio Safe</i> <i>Systems</i>	<i>Hydrogen peroxide</i>	<i>Broad spectrum bactericide and fungicide</i>	Pending use on beans, Brassica vegetables, citrus fruits, cucurbits, onions, peppers, tomato, apple, filbert, banana, grape, and stone fruit. Potential use on all crops when applied post-harvest.
<i>Hymexazol</i>	<i>Sankyo</i>	<i>Azole</i>	<i>Seed rot, <u>Aphanomyces</u></i>	Registered on sugarbeet. Potential use on pea.
<i>Iponazole</i> (VORTEX)	<i>Uniroyal and</i> <i>Gustafson</i>	<i>Triazole</i>	<i>Protects against seedborne and soilborne fungi which causes seed decay, damping off, and seedling blight.</i>	Pending use on root and tuber vegetable group, leafy vegetable group, Brassica vegetable group, legume group, cucurbit vegetable group, cereal grain group, grass, peanuts, non-grass animal feed group, cotton, sunflower, mustard seed, rape seed, and, canola.
<i>Iprovalicarb</i> (MELODY)	<i>Bayer Crop</i> <i>Science</i>	<i>Amino-acid amide carbamate</i>	<i>Activity on oomycete fungi, downy mildew, and <u>Phytophthora</u></i>	Potential use on grape, potato, tomato, cucumber, lettuce, avocado, citrus
<i>Kresoxim-methyl</i> (SOVRAN) (CYGNUS)	<i>BASF</i>	<i>Strobilurin</i>	<i>Mildews, <u>Septoria</u>, Rusts, Scab, <u>Phomopsis</u>, Black Rot. Provides protectant, curative and eradicant control of powdery mildew.</i>	Registered on pome fruit, grapes, and pecans. Pending use on cucurbit vegetable group, cereals, sugarbeet, and potato
<i>Mefenoxam</i> (RIDOMIL GOLD)	<i>Syngenta &</i> <i>Nufarm</i>	<i>Active isomer of metalaxyl</i>	<i>Same spectrum as metalaxyl</i>	Reduced Risk Product. Registered on alfalfa, almonds, apple, asparagus, avocado, beets, blueberry, Brassica leafy vegetable group, cereals, citrus, clover, cotton, cranberry, cucurbit vegetable group, fruiting vegetable group, ginseng, grape, grass, hop, leafy vegetable group, legume vegetable group, bulb vegetable group, papaya, peanut, pineapple, raspberry, root and tuber vegetables, soybean, stone fruit, strawberry, sunflower, walnut, artichoke, starfruit, kiwifruit, papaya, black sapote, star apple, canistel, mamey sapote, mango, sapodilla, sugar apple, atemoya, custard apple, lingonberry, herb subgroup. Pending foliar use on broccoli raab, Chinese cabbage, Chinese mustard, Chinese broccoli, collard, kale, mustard greens, snap beans, lima bean, carambola, caimito, and canola.
<i>Mepanipyrim</i> (FRUPICA)	<i>Kumiai</i>	<i>Anilinopyrimidine</i>	<i>Controls Botrytis. Mostly a preventive material, but has curative properties.</i>	Potential use on grape, tomato and strawberry. (International registrations approved)
<i>Metconazole</i> (CARAMBA)	<i>BASF and</i> <i>Kureha</i>	<i>Triazole</i>	<i>Broad spectrum</i>	Potential use on cereals and canola (international registrations approved)
<i>Metrafenone</i> (AC 375839)	<i>BASF</i>			
<i>MILSANA Bioprotectant</i>	<i>KHH</i> <i>BioScience</i>	<i>Extract from giant knotweed</i>	<i>Induces phytoalexins that confer resistance to powdery mildew and other diseases such as Botrytis.</i>	Biopesticide. Pending use on cucurbit vegetables, lettuce, peppers, strawberry, and grapes.
<u><i>Muscodor albus</i></u>	<i>AgraQuest</i>	<i>Biofungicide</i>	<i>Fungus produces volatile compounds that are effective against plant pathogenic and bacteria</i>	Biopesticide and potential Methyl Bromide Alternative. Potential use on fruits and vegetables.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Fungicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Myclobutanil</i> (RALLY) (NOVA)	Dow AgroSciences	Triazole	Powdery mildews, rusts, apple scab, brown rot (<i>Monilinia</i> spp.), shothole (<i>Stimina</i> spp.), cherry leaf spot (<i>Coccomyces</i> spp.) grape black rot (<i>Guignardia</i> spp.)	Registered on pome fruit, asparagus, caneberry, cucurbit vegetable group, currant, stone fruit group, gooseberry, grapes, mint, snap bean, strawberry, tomato, banana, almonds and grass seed. Pending uses on hop, pepper, sugarbeet, artichoke, eggplant, lettuce and papaya. Potential use on sugarbeet, parsley, Chinese cabbage, collards, mustard greens, cilantro, dill, grass, atemoya, mango, okra, papaya, and sugar apple.
Nicobifen - BAS 510 (HONOR)	BASF	Nicotinamide	Manages powdery mildew, <i>Alternaria</i> , <i>Botrytis</i> , <i>Sclerotinia</i> and <i>Monillia</i>	Reduced Risk Product. Pending use on garden beets, radish, canola, peanut, pome fruit group, cucurbit vegetable group, pea, Brassica leafy vegetables, sunflower, beans, celeriac, potato, fruiting vegetable group, head and leaf lettuce, canola, tree nut group, carrot, grape, onion, stone fruit group, strawberry, celery, spinach and berry crops.
<i>Oryastrobin</i>	BASF	<i>Strobiluron</i>		
<i>Oxolinic Acid</i> (STARNER)	Valent	Quinoline	Controls gram-negative bacteria and fireblight	Potential use on apple, pear, potato, beans, fruiting vegetables and rice
<i>Pantoea agglomerans</i> C9-1	Plant Health Technology	Fungus	Fireblight	Biopesticide. Pending use on apple and pear
<i>Peroxyacetic Acid</i>	Ecolab Inc.	<i>Peroxyacetic acid</i>	Post harvest decay and rot	Registered on cereal grains, herbs/spices, nut crop group, stone fruit group, pome fruit group, fruiting vegetable group, and cucurbit vegetable group.
<i>Phosphonic Acid</i> (FOLI-R-FOS) (AGRI-FOS)	Wilbur-Ellis Agrichem Mfg.	Phosphorus acid	Downy mildew, scab, and root rot	Potential use on asparagus, avocado, blueberry, Brassica leafy vegetable group, caneberry, citrus fruit group, cucurbit vegetable group, ginseng, hops, leafy vegetable group, pineapple, pome fruit group, bulb onion group, strawberry and tomato.
<i>Physpe</i> (VACCIPLANT)	Agrimar		Bacterial diseases	Biopesticide. Potential use on Pome fruit group and tomato
<i>Picoxystrobin</i> (ACANTO)	Syngenta	Second generation <i>strobilurin</i>	Wide spectrum of diseases	Potential use on cereals, grape, hop and apple (International registrations approved)
<i>Potassium Bicarbonate</i> (KALIGREEN & ARMICARB)	Toagosei, Church & Dwight	Inorganic salt	Powdery mildew	Biopesticide. Potential registration on all crops.
<i>Potassium Dihydrogen Phosphate</i> (eKsPunge)	Lido Chemical	<i>Potassium dihydrogen phosphate</i>	Powdery mildew	Registered on apple, cherry, cucumber, grape, mango, melon, nectarine, peach, pepper, plum, squash, tomato, and watermelon
<i>Potassium Phosphate</i> (PRO-PHYT)	Pamol	<i>Potassium Phosphate</i>	Downy mildew, late blight and root rots	Potential use on cucurbit vegetable group, tomato and avocado.
<i>Propamocarb Hydrochloride</i> (PREVICUR)	Bayer Crop Science	Carbamate – Systemic root uptake & acropetal distribution throughout the plant.	Downy mildew, late blight, damping-off, <i>Pythium</i> , <i>Phytophthora</i> , and <i>Aphanomyces</i> . Should be mixed with other fungicides for resistance management.	Candidate Reduced Risk. Registered on potato. Pending use on field and greenhouse tomato other members of the fruiting vegetable group, cucurbit vegetable group, lettuce, and greenhouse cucumber. Potential use on cabbage, radish, leek, garlic, bean, lychee, sugar apple, citrus, carrot, sugarbeet, onion, spinach, and celery.
<i>Prochloraz</i> (BUMPER)	Makhteshim- Agan	Carboxamide	Powdery mildew, <i>Fusarium</i> spp, leafblotch, <i>Botrytis</i> , <i>Alternaria</i> , and others	Potential use on sugarbeet, rice, wheat, barley, rye, oats, stone fruit, citrus, canola, and vegetables.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Fungicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Propiconazole</i> (TILT) (ORBIT)	Syngenta	Triazole	<i>Powdery mildew, rusts, smuts, Pyrenophora, Septoria, Cercospora, Cercosporidium, Ascochyta, Pseudocercospora Myco sphaerella, Fusicladium, Gaeumannomyces, Monilinia, Clasterosporium, Helminthosporium and related genera, Kabatiella, Ceratocystis, Sclerotium, Rhizoctonia, Rhynchosporium, and Rhizopus.</i>	<i>Registered on celery, cereals, sweet corn, field corn, popcorn, grasses grown for seed, peanut, pineapple and sugarcane. Pending use on soybean, dry bean, almond, carrot, onion, raspberry, blueberry, cranberry, and other members of the tree nut groups, sorghum, mint, and leafy petiole subgroup. Potential use on artichoke, garden beets, blackberry, parsley, and turnip greens.</i>
<i>Propoxycarbazon</i> (ATTRIBUT)	Bayer Crop Science			<i>Potential use on wheat</i>
<i>Prothioconazole</i> JAU 6476	Bayer Crop Science	Demethylation inhibitor	<i>Effective against Septoria spp, Fusarium spp and Rhynchosporium secalis</i>	<i>Potential use on cereals on oilseeds.</i>
<i>Pseudomonas chloroaphis</i> Strain 63-28 (AtEze)	EcoSoil Systems	Bacteria	<i>Target pest include soil borne diseases Rhizoctonia solani and Pythium spp. Outcompetes phytopathogenic species.</i>	Biopesticide. <i>Registered on greenhouse vegetables. Potential use on all crops.</i>
<i>Pseudomonas fluorescens</i> PRA-25	Good Bugs, Inc.	Bacteria	<i>Controls Pythium seed rot and damping off.</i>	Biopesticide. <i>Registered on pea, snap bean and sweet corn</i>
<i>Pseudomonas syringae</i> (BIOSAVE)	EcoScience	Bacteria	<i>Controls Fusarium and post harvest storage rots.</i>	Biopesticide. <i>Registered for seed/storage potato and post harvest on citrus fruit group, apple, pear, and cherry. Potential use on cranberry, banana, peach, plum and nectarine.</i>
<i>Pseudozyma flocculosa</i> SPORODEX WP	Plant Products Ltd.	Bacteria	<i>The product is for control of Powdery mildew</i>	Biopesticide. <i>Pending use on greenhouse cucumber</i>
<i>Pyraclostrobin</i> (BAS 500F) (HEADLINE) (CABRIO)	BASF	<i>Strobilurin-Mitochondrial Electron Transport Inhibitor</i>	<i>Broad spectrum activity on Anthracnose Alternaria, downy mildew, Cercospora leaf spot, rust, powdery mildew, Septoria, Phytophthora, Pythium, Rhizoctonia</i>	Reduced Risk Product. <i>Pending use on field, pop, sweet corn, pome fruit group, hops, edible legume vegetables, mint, sunflower, berry fruit group, peanut, grape, potato and other tuberous and corm vegetable group, cucurbit vegetable group, fruiting vegetable group, Brassica leafy vegetable group, head and leaf lettuce, wheat, barley, rye, grass seed, sugar beet, carrot, radish, and other root vegetable group members, citrus fruit group, bulb vegetable group, stone fruit group, banana, almond and other tree nut group/pistachio members, strawberry, peanut, lentils, and turnip greens. Potential on tropical fruits and asparagus.</i>
<i>Pyrimethanil</i> (SCALA)	Bayer Crop Science	Anilinopyrimidine	<i>Active against Botrytis spp., Venturia spp., Alternaria solani, Alternaria mali, Sphaerotheca macularis and Monilinia spp.</i>	<i>Pending use on almond, apple, onion, stone fruit, strawberry, grape, potato, and tomato. Potential use on other pome fruit, peas, beans, caneberry, peppers and other fruiting vegetables, cucumbers, citrus, pistachio, greenhouse vegetables and banana.</i>
<i>Quinoxifen/DE795</i> (ARIUS) (QUINTEC)	Dow AgroSciences	<i>Quinoline-Distrrupts early cell signling activities</i>	<i>Has shown activity against powdery mildew in a wide range of crops.</i>	Reduced Risk Product. <i>Pending use on pepper, grape, hop, cherry, head/leaf lettuce, and strawberry. Potential use on cereal group, winter squash, melons, and other members of the stone fruit group, Brassica leafy vegetable group, beet greens, caneberry, mint, guava, mango, papaya, gooseberry, artichoke, avocado, lychee, parsley, and other members of leafy vegetable group.</i>
<i>Simeconazole</i> (SANLIT) (MONGARIT)	Sankyo	Triazole	<i>Effective as seed treatment against Basidiomycetes</i>	<i>Potential use on wheat, barley, corn, rice, apple and strawberry.</i>

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Fungicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Silthiophan</i> (LATITUDE)	Monsanto	Carboxamide	Control of Take-All via seed treatment.	Potential use on wheat and barley (international uses approved).
<i>Spiroxamine</i> (IMPULSE) (PROSPER) (HOGGER)	Bayer Crop Science	Morpholine	Powdery mildew, most rusts, <u>Rhynchosporium</u> leaf blotch. Chemical shows protective, curative and eradivative effects	Pending use on grape and hop.
<u>Streptomyces lydicus</u> WYEC 108	Natural Industries		Control of soil borne plant root and damping off fungi	Biopesticide. Pending use on all crops.
SYP-L190	Shenyang Reserch	Cinnamic acid derivative (analog of dimethomorph)	Effective against oomycete fungi, including downy mildew	Potential use on grape, Brassica leafy vegetables, cucurbit vegetables and tomato.
<i>Tebuconazole</i> (FOLICUR) (ELITE) (RAXIL)	Bayer Crop Science	Triazole	Powdery mildew, rusts, smuts, bunts, apple scab, <u>Pyrenophora</u> , <u>Septoria</u> , <u>Coccomyces</u> , <u>Monilinia</u> , <u>Cercospora</u> , <u>Cercosporidium</u> , <u>Ceratocystis</u> , <u>Guignardia</u> , <u>Sclerotium</u> <u>Rhizoctonia</u> <u>Coccomyces</u> , <u>Rhynchosporium</u> , <u>Colletotrichum</u> , and <u>Botrytis</u>	Registered on banana, cherry, nectarine, grape, grass seed and peanut. Pending use on cucurbit vegetable group, turnip roots and greens, hop, wheat, tree nut group, mango, mustard greens, plums, barley, pistachio, sugarbeet, sunflower, cotton, dry beans, succulent beans, lychee, okra, coffee, asparagus, bulb vegetable group. Potential use on sweet potato, and pome fruit group.
<i>Tetraconazole</i> (EMINENT 125SL) (TM 415)	Sipcam Agro & Arvesta	Triazole	Controls <u>Cercospora</u> leaf spot, powdery mildew, leafspots, rusts, web bloch, and others.	Pending use on sugarbeet and peanut. Potential use on blueberry.
<i>Thifluzamide</i> (RH - 0753)	Dow AgroScience	Thiazole-carbomanilide - Inhibits succinic acid metabolism in fungi.	<u>Sclerotina</u> and <u>Rhizoctonia</u> .	Potential use on peanut and rice.
TM 416	Arvesta		Bacterial speck and spot	Potential use on tomato, pepper, potato and rice.
<i>Tolyfluanid</i> (EUPAREN MULTI)	Bayer Crop Science	Sulfenamide	Broad-spectrum contact fungicide with good acaricidal effectiveness. Particularly suitable for control of resistant pathogen populations.	Potential use on apples, grapes and hops (international registrations pending).
<u>Trichoderma harzianum</u> T-39/(TRICHODEX) T-22 (ROOTSHIELD)	Makhteshim-Agan and Bioworks	Fungi	Controls <u>Botrytis</u>	Biopesticide. Registered use on grapes and strawberry. Pending use on cabbage, garlic and soybean. Potential use on all other crops. ROOTSHIELD is being evaluated as part of IR-4's Methyl Bromide Alternative Program
<i>Trifloxystrobin</i> (FLINT) (TWIST) (STRATEGO*) *mix with propiconazole	Bayer Crop Science	Strobilurin	Active against powdery mildew and leaf spot diseases. Also provides significant control of scab, rusts, downy mildew and other diseases.	Reduced Risk Product. Registered on almonds, cucurbit vegetable group, fruiting vegetable group, grapes, hops, peanut, pome fruit group, potato, sugar beet, and wheat, stone fruit group, tree nut group, pistachio, corn (field and pop), rice, and citrus fruit group. Pending use on carrot, celery, radish, asparagus, and barley. Potential use on, grass seed, head lettuce, leaf lettuce, other members of the leafy vegetable group, pecans, other members of the root/tuber vegetable group, spinach, green onion, bulb onion, and other members of the bulb vegetable group.
<i>Triflumizole</i> (PROCURE) (TERRAGUARD)	Uniroyal	Triazole	Powdery mildew, rusts, apple scab, <u>Rhizoctonia</u> , <u>Cylindrocladium</u> , <u>Thielaviopsis</u> , <u>Myrothecium</u> , <u>Alternaria</u> , <u>Helminthosporium</u> and related genera.	Registered on cherry, cucurbit vegetable group, strawberry, apple, grape and pear. Pending registration on filbert. Potential use on pineapple, papaya, atemoya and sugar apple.

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Fungicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Triticonazole</i> (CHARTER)	Bayer Crop Science	Triazole		Pending use as seed treatment on wheat, barley and oats.
Zoxamide (GAVEL)	Dow AgroScience	Amide (Inhibits mitosis by binding to fungal tubulin proteins)	Control of foliar phycamycetes and <i>albugo</i> . Also protectant against Oomycete fungi. Will be mixed with mancozeb for broader activity.	Reduced Risk Product. Registered on grape, potato, fruiting vegetable group and cucurbit vegetable groups. Pending use on mustard greens, and spinach, turnip, collard, kale, taro, and sunflower. Potential use on garden beets, lettuce, broccoli, cabbage, lima beans, papaya, sorghum, caneberry, and hops.

NEMATOCIDES

Nematicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum	Status
AKD-3088	Agro Kanesho			Potential use on fruits and vegetables
<i>Bacillus firmus</i> (BIONEM) (BIOSAFE)	Minrav Infrastructurer	Bacterial nematicide	Controls root knot and other nematodes including <i>Heterodera avenae</i>	Potential use on tomato, cucumber, and pepper. International registration (Israel) approved.
Benzaldehyde				
Dazomet (BASAMID)	BASF	Thiadiazine (carbon disulfide generator)	Similar to metam sodium	Partial Methyl Bromide Alternative. Being evaluated as part of IR-4's Methyl Bromide Alternative Program in strawberry and tomato
DiTera (<i>Myrothecium verrucaria</i> strain AARC-0255)	Valent	Biopesticide	Controls root knot, cyst, lesion, citrus, stubby root, pin, reniform, dagger, sting, ring, stunt, lance, spiral, burrowing and other plant parasitic nematodes.	Partial Methyl Bromide Alternative. Registered on citrus, broccoli, cabbage, cauliflower, Brussels sprouts, and grapes. Being evaluated as part of IR-4's Methyl Bromide Alternative Program in strawberry and tomato
DMDP	BTG	Derived from <i>Lonchocarpus felipei</i>	DMDP is phloem mobile, making it suitable for foliar applications	Biopesticide. Potential use on banana and potato
Fosthiazate (NEMATHORIN)	Syngenta & ISK	OP	Controls nematodes	Partial Methyl Bromide Alternative. Pending use on potatoes, tomato, and peanut. Being evaluated as part of IR-4's Methyl Bromide Alternative Program in tomato. Potential use on coffee and banana..
Iodomethane	Arvesta	Methyl Iodide	Similar to Methyl Bromide	Potential Methyl Bromide Alternative. Being evaluated as part of IR-4's Methyl Bromide Alternative Program in strawberry and tomato
NEMASYS (<i>Steinernema feltiae</i>)	Emerald BioAgriculture	Biopesticide	Nematodes	Biopesticide
NEMASYS H (<i>Heterohabditis megidis</i>)	Emerald BioAgriculture	Biopesticide	Nematodes	Biopesticide
NEMATAC C (<i>Steinernema carpocapsae</i>)	Emerald BioAgriculture	Biopesticide	Nematodes	Biopesticide. Pending use on cranberry

IR-4 NEW PRODUCTS/TRANSITIONAL SOLUTION LIST – July 2002

Nematicides (TRADE)	Registrant	Chemistry	Pest Control Spectrum	Status
<i>Paecilomyces lilacinus</i> (BIO ACT)	Prophyta & Gustafson	Bio-nematicide	Controls root knot and cyst nematodes	Biopesticide. Potential use on banana, tobacco, pineapple, cucurbit vegetables, fruiting vegetables, cocoa, citrus fruit, and coffee.
PLANTPRO 45	Ajay N.A.	Iodine Complex	Many pests controlled by Methyl Bromide	Partial Methyl Bromide Alternative. Being evaluated as part of IR-4's Methyl Bromide Alternative Program.
PROPOXIDE	Aberco	Propylene oxide	Fumigant for stored nuts and spices. Potential for soil uses	Potential Methyl Bromide Alternative. Registered on nut crops. Being evaluated as part of IR-4's Methyl Bromide Alternative Program
Sodium Azide	American Pacific	Sodium Azide	Many pests that are currently controlled by methyl bromide	Potential Methyl Bromide Alternative. Being evaluated as part of IR-4 Methyl Bromide Alternative Program
Sodium Tetrathiocarbonate (ENZONE)	Entek Corporation & Helena	Sodium Tetrathiocarbonate (carbon disulfide generator)	Water-soluble soil fumigant for management of, plant parasitic nematodes, various soil borne pathogens and other soil pests.	Potential Methyl Bromide Alternative. Registered on grape and citrus. Being evaluated as part of IR-4's Methyl Bromide Alternative Program in strawberry and tomato
TELONE (INLINE Formulation)	Dow AgroSciences	1,3,dichloropropene + chloropicrin	Many soil insects, nematodes and plant diseases	Partial Methyl Bromide Alternative. Being evaluated as part of IR-4's Methyl Bromide Alternative Program in strawberry and tomato
TERRAPY	Cognis Deutschland	Fatty acid preparation in alkyl(poly)glycoside	Shown to significantly reduce <u>Meloidogyne</u> infestations	Biopesticide. Potential use on tomato, carrot cucumber, sugar beet, and potato

OTHER TYPES OF PEST CONTROL PRODUCTS

Chemical (TRADE)	Registrant	Chemistry	Pest Control Spectrum/Traits	Status
<i>Methyl Anthranilate</i>	Becker Underwood	<i>Methyl Anthranilate</i>	Bird Repellent	Registered on grape, blueberry, cherry, corn and sunflower. Potential use on all crops.