IPM in Japan focusing biocontrol

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Major Registered Microbial Pesticides from Japan as of September, 2016 (T.Wada)			
Company	Product	AI	Target
Idemitsu Kosan	Tough Block WP	**Talaromyces flavus**	Anthracnose, Colletotrichum, Botrytis, Rice Bacterial seedling blight and grain rot
Central Glass	Biokeeper WP	**Erwinia carotovora**	Bacterial soft rot in Potato and vegetables (avirulent strain)
Central Glass	Vegekeeper WP	**Pseudomonas fluorescence**	Pseudomonas chicorii, Xanthomonas campestris
Kumiai Chemical	EcoHope	**Trichoderma atroviridae**	Rice ; Bacterial seedling blight, Bacterial grain rot
Hybrid pesticides from Kumiai	Clean Cup	**B.subtilus D747 + Copper hydroxide 50%**	leaf mold, Botrytis, downy mildew, Corynespora, Pseudoperonospora

Nippon Soda	Masterpiece WP	**Pseudomonas rhodesiae. HAI-0804**	Citrus, peach, plum ; Xanthomonas campestris, Pseudomonas syringae
Arysta Japan	Pirates	**Metarhizium anisopliae**	Aphids, Thrips, Whitefly
Sumitomo	Gottu A EC	**Paecilomyces tenuipes**	Vegetables: Whitefly, Bemisia, Aphids
Various	Btk/ Bta	**Various over 10 strains**	Lepidoptera B.cereus scandal 20 years ago but cleared.
Idemitsu Kosan	BioLisa	**Beauveria brongniartii**	Long horn beetle etc
Arysta Japan	Botanigard	**Beauveria bassiana**	Aphids, Thrips, Whitefly, Lepi
Arysta Japan	Mycotal	**Lecanicillium muscarium**	whitefly, Aphids
Mitsui & Co.	Preferred	**Isaria fumosorosea**	whitefly
SDS Biotech	Impression clear	**B.amyloliquefaciens**	Botrytis, powdery mildew
Various	Various	**B.subtilus**	Botrytis, powdery mildew
Meiji	Lactoguard	**Lactobacillus plantarum**	Soft rot
Arysta Japan	Hamaki Tenteki	**GV Homona magnanima/ Adoxophyes orana**	Tea leaf roller , Tea tortorix
Nihon Nohyaku	Bacterose	**Agrobacterium radiobacter**	Rose Agrobacterium tumefacience

But in fact, these biopesticides sales are very small and sluggish…

Why?

Because growers choose chemical pesticides…

I am a hobby wine grower of 1 ha, this year, lots of rain, led to high botrytis occurrence.

In case of emergency, we have to rely on chemicals…

Need governmental pressure to include biopesticides into spray calendar… compulsory…

Natural enemies of Japanese Origin from Japanese companies

Natural enemy	Target	Producer
Predators		
Propylea japonica (Lady bug)	wider range of Aphids	Sumitomo Techno
Franklinothrips vespiformis	thrips	Arysta Japan
Haplothrips brevitubus	thrips	Ishihara
Gymaeseius liturivorus	thrips	Agri-soken
Parasites		
Aphelinus asychis	Aphids	Sumika Techno
Neochrysocharis formosa	leafminers	Sumitomo
Aphidius gifuensisi	Aulacorthum solani	Arysta Japan

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Biopesticide and Natural enemies Registration system of Japan

Japan is unique country to require registration even for Natural enemies.

1. Import permission (non-phytophagus, non-human infecting microbials)

2. Data Requirement : over 3year field or greenhouse efficacy trials over 8 valid results for each pest insects and crops

Very official strict trials. No compromise by neutral governmental research stations.

3. Total year till registration : approx. 5 years. But 1 year after submission (pre submission period is longer)

4. Microbial pesticides : Over 10 valid efficacy result over 3 years for each pest and crops. Registration 1 year after submission rule.

5. Pathogenicity studies of approx. 5 routes required. Similar to US EPA.

To obtain registration in Japan or elsewhere,
It is (seems) quicker to conduct all the required studies and trials than negotiating (refuting) with authorities.

Chemical pesticide companies are facing more and more

(I used to be in charge of chemical pesticide registration in Japan.)

stringent requirement from authorities….especially in US and EU and probably in Japan too…

Moreover, Regulation makes the product quality better…..

Without stringent regulation, lower quality products will prevail…(even though the law seems RED TAPE requirement)

So the reasonable regulation and registration system of Biopesticides are good to the Industry!!!

This prevents influx of low quality products to EU, US and others….

If there is no strong Intellectual property protection like Patents, who will invest to such fragile business sector?

Stringent and Strict Registration requirement is good for quality and safety and the last IP protection way.

Of course, slow process in not welcome !

Current Japanese IPM

Japan is No. 4 or 5 Chemical pesticide Market in the world.

No. of Patents and inventions in chemical pesticide in Japan is after Germany, Switzerland and U.S.A.

95% of control is done by Chemical pesticides as of today.

But much of strawberry and sweet pepper in greenhouses are protected by IPM method.

Difference in natural enemy use pattern in Japan from European standards.

(mainly on Macrobials)

That is : Zero release and RESET method due to high insect pressure..

Why chemical correction before release is necessary in Japan or warmer regions?

Japan is temperate zone country….

But the summer in Japan, sometimes……

Bangkok or Hong Kong is cooler!!!

So the insect pressure is mostly very high from March thru October….

Similar to Italy and Spain…

Compatible chemicals in IPM

Thrips	Pleo*, Match, Cascade
Aphids	Urara**, Chess, Colt (Nihon Nohyaku)
Spider mites	Starmite***, Danisaraba(OAT), Blfenazate, Kanemite(Agro Kanesho)
Lepidopteran	BT, Flubendiamid(Nihon), Rynaxiypyr
Pentamidae, whtefly	Dinotefuran(Mitsui), Colt, Nitenpyram
Many of less toxic chemicals to natural enemies are coming from Japanese manufacturers.	

*Pyridalyl (Sumitomo) ** Flonicamid (Ishihara), ***Cyenopyrafen(Nissan)

Before introduction (7-30days)

Ardent, Pyrethroids, Agrimec, Milbemycine, Kotetsu, Movento, Spinosad, Diana et cetra

Should be avoided after natural enemy entry.

But Even after natural enemy and microbials plant protection method are established, ...

Movento insecticide or Agrimek insecticide are registered recently in Japan,

- Some growers returned to old chemical based spray calendar !
- Growers are not royal to BC and not using BC for environment or nature, but for efficacy reason!
  Such as resistant pesticides inundation!

Even though, important points in global IPM Progress

Collaboration program with soft chemicals , which means selective, and

"Environmentally sound"(less and less toxic to environment).

More product registration in natural enemies and microbials. In addition, Herbicides arena and outdoor crop such as grain and orchards is key to dominate the PPP market. Otherwise, most of chemical co. do not worry.. And will not change….their directions…

Japan BioControl Association born this year.

2 Biological control associations have existed for the past 20 years. Members are ;

Arysta Japan
Idemitsu Kosan
SDS Biotech
Kyoyu Agri
Shin-Etsu Chemical
Sumitomo Chemical
Central Glass
and other over 20 associated members and individual members

Thanks for your help and Good luck to Biocontrol future/Avenir !!!