

NEXT BEST THING EVER!

BATTLE RIVER IMPLEMENTS

AGRONOMY UPDATE August 2017



I spend quite a bit of time every winter attending seminars, reading industry publications and generally trying to keep up with the rapidly changing world of agriculture. Over the last couple of years there has been one trend that has really caught my attention; that is the growing plethora of products out there that can be best characterized as

“Agricultural Biologicals”. If you are not familiar with this phenomenon, you need to educate yourself on it, because there is a parade of companies out there that may have new and innovative solutions for some of your production issues. Here’s the hard part though, some of them are legitimate products that may help your bottom lines and others are likely unproven technology that is of questionable worth. The problem is they sound very similar when they are being explained to you, so how do you tell the difference?



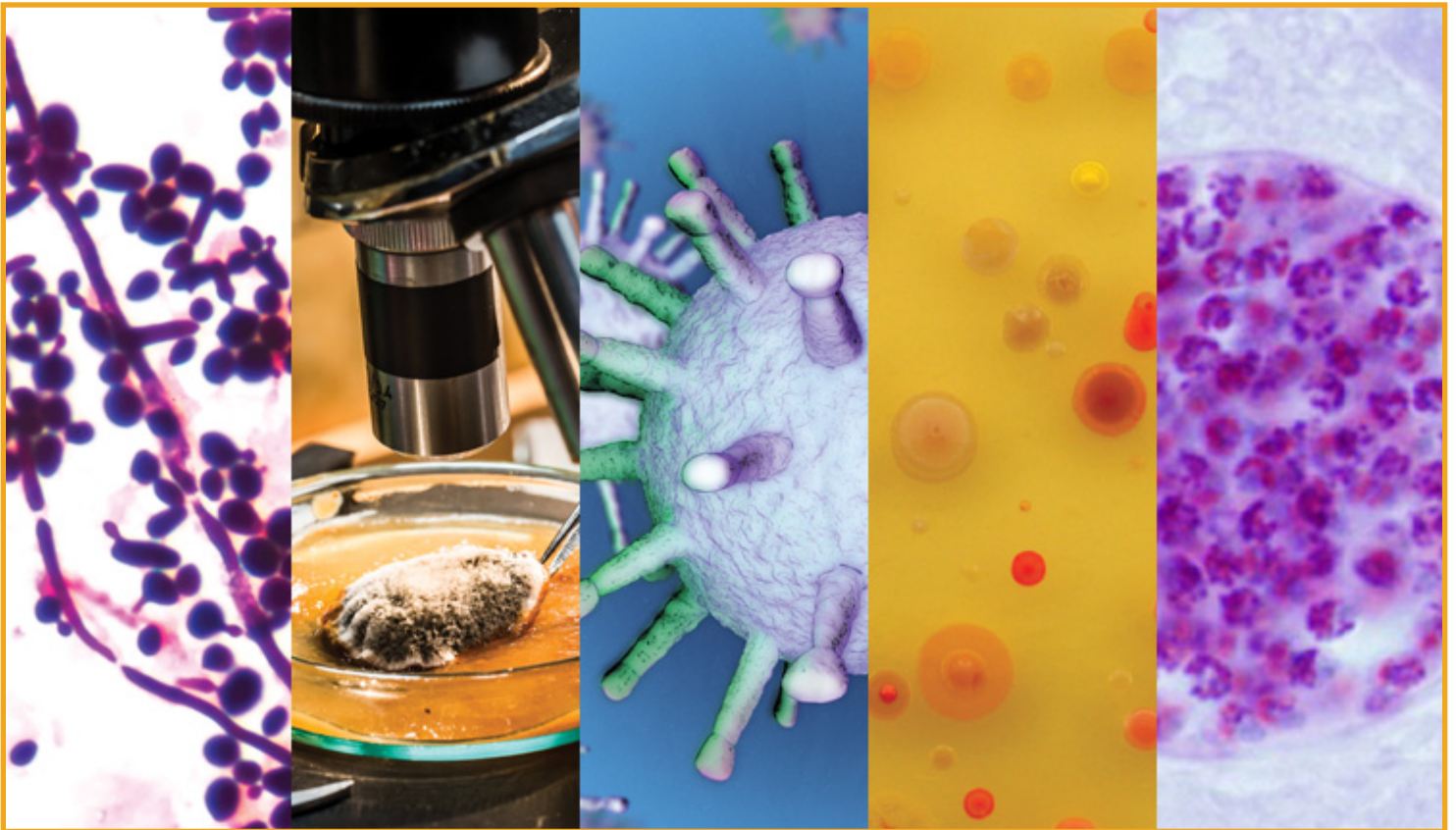
So What Are “Agricultural Biologicals?”

Well, that depends who you are asking. According to YLAD Living Soils, it's all about the soil with a goal of “attaining balance between physical, chemical nutrients and biological facets of the soil”. According to Novozyme, biologicals “are naturally-occurring solutions, such as microbials, plant extracts, beneficial insects and other organic material that allow farmers to improve crop health and productivity.” You can also find companies that offer a mix of solutions, such as enzymes for plant growth, naturally occurring soil amendments for root stimulation, as well as

of the unscrupulous and leaving gullible customers with smaller bank accounts, no return on the money spent, and usually with a few jugs of slough water in the back of the shed to remind them of a hard learned lesson. But I believe this is different. When the heavy hitters such as Loveland Industries and Monsanto start pouring research and development dollars into an area, there is likely something there. By 2020 it is estimated that Biopesticides will be a \$5.0 billion business worldwide and Biostimulants will account for another \$2.0 billion.

What's Driving This Market?

The move to biological solutions is being driven by a couple of very different things; one of those is based in the



a portfolio of foliar products that are based on traditional chemical fertilizer technology.

Are “Agricultural Biologicals” A Trend Or Just Another Fad?

Ag Biologicals tend to fall into one of 3 basic categories; Biostimulants (plant growth/enhancement products such as plant hormones), Biopesticides (biological control products), or Biofertilizers (plant nutrition products). I am by nature and by training a sceptic. I have spent most of my professional career ignoring the “snake oil” and “miracle cures” that have come and gone over the last 30 years, filling the pockets

issues and problems that face our agricultural industry today. Chemical pesticides and fertilizers have downsides that include target species resistance, groundwater and surface water pollution and off site movement causing unintended side effects. These are real and serious challenges facing the industry and biologicals may be part of the solution. The other thing driving the growth of the business is growing consumer interest in organic products and “green” solutions to replace current farming practices.

Buyer Beware!

So here we have a newly emerging market that is projected to have rapid growth. The cost of entering this market is minimal compared to the cost of getting into the fertilizer or chemical pesticide business. To bring a new herbicide to market requires an infrastructure that includes the ability to synthesize new molecules, test them on a variety of weeds and crops, do environmental impact studies and explore all the potential human health implications. Excluding the infrastructure costs of labs, greenhouses and research farms, you are looking at about \$80 million to \$100 million and 7 to 10 years of time, just to bring the product to market. In contrast, anybody who wants to enter this largely unregulated “Ag Biologicals” market faces almost none of these hurdles. For example, somebody who wants to produce and sell humic acid really only needs access to decaying organic material and caustic soda to extract both humic and fulvic acids. Since the Canadian government drastically changed regulatory requirements for the fertilizer industry in 2013, there is no longer a requirement for a company to provide proof of efficacy to the government to obtain a registration. In other words, there is no longer an onus on a manufacturer of soil amendments, for example, to field test and prove their label claims. The only standard



they are held to by law is the amount of active ingredient in the container. If a similar product is registered already, a manufacturer can apply for a simple “me too” label and be in business very quickly. So when I look at the Ag Biological market, I see a lucrative and growing market that is loosely regulated, has

a low cost of entry and often has low production costs. What could possibly go wrong for Canadian producers under this scenario?

Do Some Research

With no real way to know what products may represent true value and which represent “fool’s gold” how should a person proceed? I encourage you to get as much literature as possible when thinking about trying these products and I would ask some of the following questions.

- Who is selling this? Is it a large reputable company with many years invested in the Ag industry or is it a company that didn’t exist 18 months ago?
- Do they have legitimate research that backs up their claims?
- Where was the research done – locally, another country, in a greenhouse?

- Does that research pass the “Bad Science” test? The guide on the next page should help you determine that.

Final Advice

In the end, there is no real way to find out if something will work on your farm without trying it. So if you find something that intrigues you, or you believe may be a fit for your operation, by all means – give it a whirl! Just don’t bet the farm on one of these products. Try it on small acres and replicate in several places. Remember if you split a field in half and spray ½ with distilled water and ½ with well water, you have a 50% chance of getting a random “response” to distilled water. If you really want to gather useful information from your on farm trials, I suggest you check out IHARF which provides an excellent (and free!) on farm research guide and Data analysis tool. You can find them by following this link. <http://iharf.ca/on-farm-tool/>

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• BAD SCIENCE •

1. SENSATIONALISED HEADLINES



Headlines of articles are commonly designed to entice viewers into clicking on and reading the article. At best, they over-simplify the findings of research. At worst, they sensationalise and misrepresent them.

2. MISINTERPRETED RESULTS



News articles sometimes distort or misinterpret the findings of research for the sake of a good story, intentionally or otherwise. If possible, try to read the original research, rather than relying on the article based on it for information.

3. CONFLICT OF INTERESTS



Many companies employ scientists to carry out and publish research - whilst this does not necessarily invalidate research, it should be analysed with this in mind. Research can also be misrepresented for personal or financial gain.

4. CORRELATION & CAUSATION



Be wary of confusion of correlation & causation. Correlation between two variables doesn't automatically mean one causes the other. Global warming has increased since the 1800s, and pirate numbers decreased, but lack of pirates doesn't cause global warming.

5. SPECULATIVE LANGUAGE



Speculations from research are just that - speculation. Be on the look out for words such as 'may', 'could', 'might', and others, as it is unlikely the research provides hard evidence for any conclusions they precede.

6. SAMPLE SIZE TOO SMALL



In trials, the smaller a sample size, the lower the confidence in the results from that sample. Conclusions drawn should be considered with this in mind, though in some cases small samples are unavoidable. It may be cause for suspicion if a large sample was possible but avoided.

7. UNREPRESENTATIVE SAMPLES



In human trials, researchers will try to select individuals that are representative of a larger population. If the sample is different from the population as a whole, then the conclusions may well also be different.

8. NO CONTROL GROUP USED



In clinical trials, results from test subjects should be compared to a 'control group' not given the substance being tested. Groups should also be allocated randomly. In general experiments, a control test should be used where all variables are controlled.

9. NO BLIND TESTING USED



To prevent any bias, subjects should not know if they are in the test or the control group. In double-blind testing, even researchers don't know which group subjects are in until after testing. Note, blind testing isn't always feasible, or ethical.

10. 'CHERRY-PICKED' RESULTS



This involves selecting data from experiments which supports the conclusion of the research, whilst ignoring those that do not. If a research paper draws conclusions from a selection of its results, not all, it may be cherry-picking.

11. UNREPLICABLE RESULTS



Results should be replicable by independent research, and tested over a wide range of conditions (where possible) to ensure they are generalisable. Extraordinary claims require extraordinary evidence - that is, much more than one independent study!

12. JOURNALS & CITATIONS



Research published to major journals will have undergone a review process, but can still be flawed, so should still be evaluated with these points in mind. Similarly, large numbers of citations do not always indicate that research is highly regarded.