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Building biobeds benefits Alberta agriculture

By Barb Glen

Biobeds come in many forms, including poly tanks, poly-lined wooden frames, poly-lined ground pits and heavy-clay pits. This is a raised biobed at the Canada Saskatchewan Irrigation Diversification Centre at Outlook. Microbes in the biobeds degrade pesticides and reduce the risk of contaminating water. | File photo

MEDICINE HAT — The gauntlet has been thrown. After building a biobed on its site near Lethbridge and a portable model on a trailer, Farming Smarter wants to see 50 biobeds built by farmers in southern Alberta within the next two years.

Biobeds are systems used to process and neutralize leftover pesticides and sprayer rinsates in an environmentally friendly manner. Commonly used in Europe, there are few in Canada but, in theory, every farm could build one for less than $10,000.

Ken Coles, executive director for the applied research group, referenced Claudia Sheedy's work on handling pesticide residues. The Agriculture Canada researcher has done extensive work on the topic

"The science is done on this," said Coles. "Biobeds work."

As well, they have advantages beyond safe handling of chemicals.

"We always hear about public and social licence and … I think this is a really perfect example. If we could really grab hold of this idea now, with a lot of adoption, (we could) turn around and sell that to the public as to what we're doing with responsible use of pesticides, on top of what we're already doing."

A biobed project includes a collection area for sprayer rinsate that can be pumped into the first of two or three tanks, bins or other receptacles. Liquid from the first tank is gradually pumped into a second tank or area — the biofilter — that includes a gravel base covered with landscape fabric and layers of compost, soil and straw. Over time, bacteria in the tanks holding the organic matter metabolize the pesticide residue.

The process is effective on most pesticides, though less so on bentazone and clopyralid.

Agriculture Canada has a manual on how to build a biobed, but Coles said his group did not find it user friendly. Farming Smarter now has a full list of parts and fittings needed to build one and came up with cost estimates much below Agriculture Canada's estimate of $10,000 to $15,000.

"We did it for less than $5,000," said Coles, although the site already had concrete slabs to use for the base and that figure does not include labour.

The initial holding tank should be large enough to hold a year's worth of rinsate, he said, and then should be gradually moved to the biofilter using drip tape running for no more than two hours a day.

Studies show the first biofilter removes about 90 percent of the pesticides and the second one cleans it up almost completely. A well-built biobed should last seven to 10 years, after which it can be refurbished with new compost, soil and straw.

A grant is available from Agriculture Canada through the Canadian Agriculture Partnership program that can cover half the costs of building a biobed.

The form is available online here. Look under the Agricultural Input and Waste Management Strategies title.