

Agitation

Agitation needs vary with the spray materials you use. In most cases those of you who use powders or granular products will require a more robust means of agitation than those who use liquid concentrate solutions. Some liquids will foam if the agitation is too vigorous. Generally, pump manufacturers will recommend excess flow in gpm should be 5% of the spray tank's capacity. In this tip we will go over the different methods of agitation and the pros and cons of each.

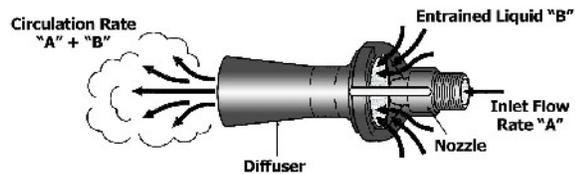
Mechanical Agitation is a shaft with paddles that, in most cases, are driven by an auxiliary output shaft coming off the pump. For many years this has been the preferred method by operators who spray a substantial amount of powder based solutions. In this authors opinion there is a better option.

The "Pro" in this situation is consistency. You know as long as the engine is running, and your system in good condition, the material is being blended.

The "Cons" are, more moving parts, which in turn means more service and a greater potential for leaks. Metal parts that ride in chemical solutions can deteriorate, yes even stainless steel. Servicing the system can be difficult, especially when the tank lid is a small diameter.



Jet Agitation is a pressure line, (not bypass), that returns product to the tank and usually through some type of jet agitation nozzle. Depending on the pump and nozzle this form of agitation can be more effective than the mechanical type. If valved properly you have the ability to adjust it from really vigorous to gentle and several points in between. The ability to direct the agitation to a particular part of the tank, for instance around the tank's sump, is another nice feature of jet agitation. Nozzle technology has improved the use of fluid as a means of agitation as well. Eductor nozzles will actually increase the flow of the fluid that is supplied to the nozzle by three times. All pros no cons for this method of agitation as long as your system has adequate volume for a second pressure line.



Approximate Flow Rate Performance	Inlet Liquid Pressure							
	10 PSI	15 PSI	20 PSI	25 PSI	30 PSI	35 PSI	40 PSI	50 PSI
Inlet Flow Rate "A" (GPM)	13.5	17	19	21	23	25	27	30
Entrained Liquid "B" (GPM)	54	68	76	84	92	100	108	120
Circulation Rate "A" + "B" (GPM)	67.5	85	95	105	115	125	135	150

Based on a Spraying Systems model Y9270 "E" Eductor Nozzle. Table Data compliments of Spraying Systems Co.™

Bypass Agitation is probably the most common. Excess spray material is returned to the tank by a pressure relief or other design valve. The "Pros" are that bypass agitation works rather well for basic herbicide applications and is cost effective. The "Con" is that the fluid is returned to the tank at low to moderate pressure. If you do use materials that don't emulsify well you could be in for a lot of clogged nozzles and less than desirable results from your application.



Sparger or Sparge Tube is a length of tubing with multiple holes strategically located that runs the length of the tank. The holes are sized according to the pumps output. We see sparge tubes generally used in larger tank trailers. The pros are that this method is inexpensive and produces uniform agitation. The con is that it takes a great deal of fluid to create substantial agitation.



If you have any questions, concerns or would like to share something that you have found helpful in your spraying practices e-mail to: pbm@pbmsprayers.com.

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