

Sorting out the application requirements for Enlist Duo, XtendiMax w/VGT, and Engenia (version 4.0)¹

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The recent EPA approvals of XtendiMax w/VGT, Engenia, and the earlier approval for Enlist Duo w/Colex-D have presented new challenges for the application industry. Spray system operators will now be required to adhere to some very detailed specifications regarding the setup and operation of the sprayers used to apply these products. Nozzle type and size, pressure, droplet size, ground speed, and spray boom height are among some of the parameters that are specified in these crop protection product labels. Refer to the label for complete details. The following chart has been prepared to help make sound decisions regarding the application of these three products.

Application specifications for Enlist Duo w/Colex-D (US specimen label), Xtendimax w/VGT, and Engenia (taken from the US soybean supplemental labels).

	Enlist Duo w/Colex-D	XtendiMax w/VGT	Engenia
Tank Mix	Only if approved by the EPA. www.enlisttankmix.com	Only if approved by the EPA. www.xtendimaxapplicationrequirements.com	Only if approved by the EPA. www.engeniatankmix.com
Ammonium salts	<u>Do Not</u> substitute water with a nitrogen source.	NO	NO
DRA's	Only if on the approved list.	Only if on the approved list.	Only if on the approved list.
Aerial	NO	NO	NO
Specified Nozzle Type(s)	Only those listed in the chart of EPA-approved nozzles.	TurboTeeJet TTI11004	TurboTeeJet TTI11004
Other Nozzle Types	Check website for changes. www.enlisttankmix.com	Check website for changes. www.xtendimaxapplicationrequirements.com	Check website for changes. www.engeniatankmix.com
PSI	Specific to the nozzle type listed in the approved chart ³ .	<u>Do Not</u> exceed 63 PSI ³ .	<u>Do Not</u> exceed the nozzle manufacturer's recommended PSI range ³ .
Minimum PSI	Specific to the nozzle type listed in the approved chart ⁴ .	Not Specified ⁴	Not Specified ⁴

Footnotes:

¹This information reflects the author's interpretation and is subject to change at any time. Comments shown in red print are provided by the author and are based on research and multiple years of working in the application industry. To contact the author, email bob@rewolfconsulting.com.

²This footnote as been removed.

³Exceeding maximum PSI will create smaller, more drift prone droplets.

⁴Failure to maintain a minimum PSI while using venturi nozzle types may influence spray pattern quality, which could result in a non-uniform application with reduced coverage. Lower PSI's will result in larger spray droplets, which may also result in poor coverage and reduced weed control. Research would support that some venturi nozzle designs, including the TTI, will perform better at pressures above 50-55 PSI. That may be above the manufacturer's recommendation for minimum pressure.

	Enlist Duo w/Colex-D	XtendiMax w/VGT	Engenia
Spray Volume	10 – 15 GPA	10 GPA minimum ⁵ .	10 GPA minimum ⁵ .
Equipment Ground Speed	Not specified	Do Not exceed 15 MPH ⁶ . Your Pressure Gauge should be your speedometer!	Do Not exceed 15 MPH ⁶ . Your Pressure Gauge should be your speedometer!
Spray Boom Height	Refer to the nozzle manufacturer's information for the nozzle type chosen to determine the minimum boom height. ⁷	<u>Do Not</u> exceed 24-inches above the target. ⁷	<u>Do Not</u> exceed 24-inches above the target. ⁷
Temperature/Humidity	Produce larger droplets when the conditions are both hot and dry.	Produce larger droplets when humidity is low and temperatures are above 91°F.	No restrictions listed.
Wind Speed	<u>Do Not</u> apply when above 15 MPH.	<u>Do Not</u> apply when above 15 MPH. <u>Do Not</u> apply when less than 3 MPH.	<u>Do Not</u> apply when above 15 MPH. Only apply when below 3 MPH when no temperature inversion is present.
Temperature Inversion	<u>Do Not</u> apply during a local, low level temperature inversion.	<u>Do Not</u> apply when field level temperature inversion is present.	<u>Do Not</u> apply when field level temperature inversion is present.
Buffer Zone	30 feet (endangered species) ⁸	110 feet or 220 feet (endangered species) ⁸	110 feet (endangered species) ⁸
Cleanout	Rinse with clean water using at least 10% of tank volume. TRIPLE RINSE , inspect and clean all spray system parts. Use commercial tank cleaning agents and let stand for several hours or overnight. Dispose of appropriately and in compliance with local, state, and federal requirements.	Clean the equipment immediately after using this product. <u>Do Not</u> allow the spray solution to remain in sprayer tank overnight. TRIPLE RINSE , inspect and clean all spray system parts. Use commercial detergent, spray system cleaner, or ammonia. Dispose of appropriately and in compliance with local, state, and federal requirements.	<u>Do Not</u> leave in sprayer tank overnight. After using, clean all mixing and spray equipment. TRIPLE RINSE , using a commercial sprayer cleaner containing strong detergents. Dispose of appropriately and in compliance with local, state, and federal requirements.

Footnotes:

⁵When using the suggested minimum 10 GPA application volume, it may be difficult to calibrate for the desired speed while maintaining the 55-60 PSI needed while using the TTI11004. For example: Calibrating for 12 GPA at 12 MPH with a 20-inch nozzle spacing using the TTI11004 would require 60 PSI, which would meet the specification. Use this formula to make that determination: GPA x MPH x Nozzle Spacing/5940 = GPM. Then use charts to determine PSI needed for that GPM. An example that doesn't work: using 10 GPA at 12 MPH in the above example would result in a 40 PSI requirement. At that lower PSI, pattern quality and coverage may suffer.

⁶When using rate controllers, higher speeds can result in higher pressures with increased drift potential and reduced coverage. Higher ground speeds often relate to higher spray booms. Slowing down helps with boom stability, improves coverage, and reduces drift potential.

⁷Proper boom height is critical for maintaining a uniform application. A boom too high leads to excessive overlap, as well as more potential for drift. When the boom is too low, a lack of overlap will result in skips. Maintaining the proper boom height will help in reducing off-target movement and improving coverage. **Rule of thumb for boom height is based on a 1:1 ratio of nozzle spacing to height above the target, ie. a 20-inch spacing = a 20-inch boom height above the target and a 15-inch nozzle spacing = a 15-inch boom height.**

⁸Buffer zone is specified for sensitive areas (endangered species). **Do Not** spray when winds are blowing toward adjacent susceptible crops.

It will be the responsibility of everyone involved to practice good stewardship while using these products. Also, all involved must **READ** and **FOLLOW** the current version of the label before making any applications. **AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR!!!!**