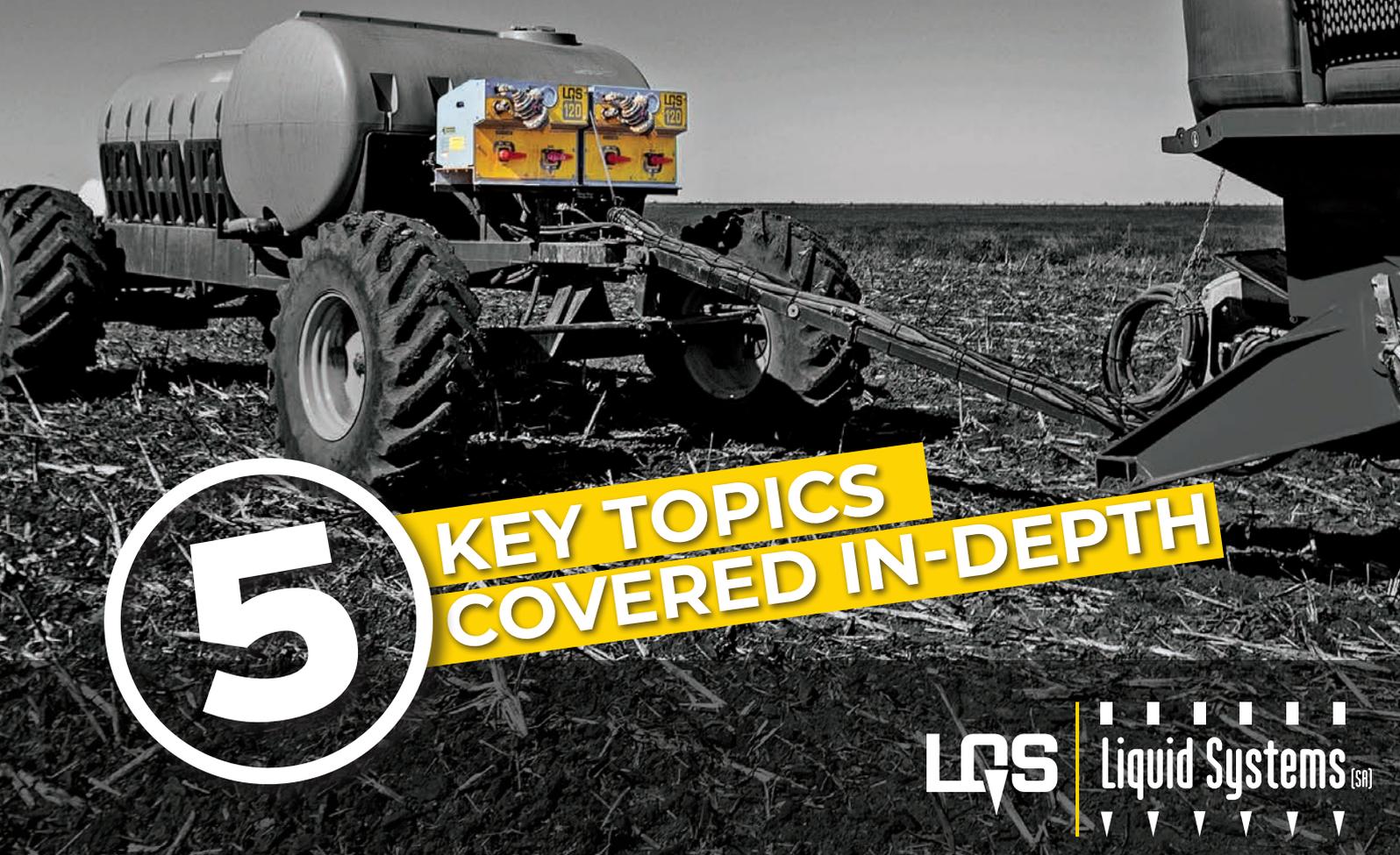


# THE ULTI- MATE GUIDE BEFORE GOING LIQUID



5

KEY TOPICS  
COVERED IN-DEPTH

# TARGET IN-FURROW

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## INTRODUCTION

Liquid Systems (SA) is just one part of the in-furrow liquid equation. We provide everything you need for adding liquid application functionality to your seeding and tillage equipment with a Liquid pump module, plumbing and distribution kit. However, there are numerous infrastructure and agronomic factors to consider before going liquid.

Liquid delivery offers additional flexibility and can be complementary to granular fertiliser use.

Liquid applications include fertilisers, micronutrients, inoculants, fungicides, pesticides, nematicides, soil conditioners, soil wetters, biologicals and more.

Adding liquid capability can increase complexity but the benefits quickly justify the change in practice.



**TOM JOHNSTONE, NSW** "It's a good system, that's straight forward to install with everything you need, and the Liquid Systems team are there to help you out. We like having the nitrogen up front - we get better efficiency than using urea and it's easy to apply at sowing."



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## WHAT IS IN-FURROW APPLICATION

The yield potential of any crop is reduced by plant stress and the most vulnerable stage in the growth cycle is emergence.

In-furrow application accurately places fertiliser and other crop inputs into the furrow near the seed, instead of broadcasting or spraying them across the soil surface as has traditionally been the case.

A stream of liquid fertiliser, micronutrients, pesticide and fungicide can be placed with the seed, to the side or banded along the top or bottom of the furrow, depending on a product's seed separation requirements.

Correct product placement protects seed from unnecessary stressors and makes it easier for the growing roots and coleoptile to access the nutrients the plant needs to stay healthy and get the crop off to a good start.

### REASONS TO ADOPT IN-FURROW LIQUID APPLICATION.

In-furrow application of crop inputs can solve and prevent numerous problems in a single pass, delivering savings on time, labour, fuel and products.

Above all, it avoids product wastage from residue tie-up and volatilisation, enhances nutrient uptake and can result in significant yield increases.

1. Improve Operational efficiencies and increase farm profitability.
2. Improve input use efficiency with reduced volatilisation, variable rate application & section control.
3. Improve disease resistance with in-furrow crop protection applications, potentially reducing number of spray applications required post-seeding.
4. Apply multiple inputs in one pass – save time and maximise efficiencies.
5. Target & evenly distribute nutrients directly where it is needed and improve germination.
6. Increased flexibility to add different crop care, fertiliser and micronutrient applications to seeding operations.
7. Faster, better crop establishment.

# ROW TO ROW

# ACCURACY



**ANDREW HANSEN, SA** "The level of accuracy and consistency that the Liquid Systems equipment provides also means you're not wasting product. So for budgeting, it's very good and also for consistency of application right across the paddock"



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## WHAT LIQUIDS?

- Think about what problems you are trying to resolve. Is it soil issues, nutrient availability, disease prevention? What improvements are you trying to make?
- Undertake soil testing and discuss with your agronomist the requirements for each crop. This will help you identify the types of liquids that could be applied.
- Research what liquid products are available and at what cost?
- Deal with reputable liquid manufacturers. Research the products thoroughly. Make sure the products have compatibility and application advice.
- Make decisions on what liquids, what rates and where in the soil profile the products are best applied and who to source them from.
- Decide best location of application in the furrow eg. Below seed, side band, surface band. This may be product dependant.
- Mapping paddocks into management zones may be useful.
- When considering tank mixing, get compatibility advice from your agronomist and liquid retailer.
- Always read the product information, follow instructions and mixing procedures.
- Always do jar and bucket tests to ensure compatibility.
- Remember to keep things simple when you first start. Tackle the most important soil & crop issues first. Start with single products or simple mixes.
- Liquid Systems (SA) products can be easily upgraded to include a separate dual liquid or section control whenever you are ready.

**DANNY SANDERSON, WA** "Liquid Systems make a good product. It's saving the cost of the boom spray, but it's more about the efficiency of the nitrogen. The best place for nitrogen to be is banded in the ground where it can't volatilise and disappear, so we find our nitrogen use is very, very efficient."



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# RESEARCH

IT'S IMPORTANT TO UNDERSTAND WHAT YOU WANT TO ACHIEVE FROM USING A LIQUID SYSTEM FOR IN-FURROW APPLICATION. REMEMBER, IT DOESN'T HAVE TO BE AN ALL OR NOTHING CHOICE - LIQUID DELIVERY CAN ALSO COMPLEMENT GRANULAR FERTILISER USE. OFFERING GREATER FLEXIBILITY.



## LIQUID STORAGE AND LOGISTICS

- Talk to your local supplier of liquid chemicals about supply and logistics including delivery of liquid to farm and ordering lead times.
- Depending on the product, is on farm storage required? Or will shuttles be an acceptable option for your operation?
- Consider availability and storage of water for flushing and tank mixing. Ground water may often not be compatible with liquid products.
- How will you transport liquid to the paddock? Do you need to purchase and kit out an additional truck for this purpose? Or do you have existing cartage equipment that could be used?
- Look for a suitable transfer pump with flow capacity that will optimise your liquid refill to match seed and granular product refill time?

# INFRASTRUCTURE



### TIPS & TRICKS LISTEN HERE

NSW Farmer, Lee Lonergan, long-time user of Liquid Systems shares his years of experience about liquid transfer and logistics.





## LIQUID PLANTING MACHINERY

- Are you looking at a new liquid air cart ? or are you retrofitting to an existing air cart? liquid cart? or planter?
- Think about the seed tank size in relation to the liquid tank size so you can sync the refills and minimise down time. When mixing products, you may need to add water.
- Size of tank is determined by rate of application and/or how many hectares you want to get out of a seeder box. The tank size will guide us to the size of pump required for agitation purposes.
- Where can you mount liquid product tanks and the pump module? Where can you mount a clean water flush tank? Tanks and pump modules can be mounted on air carts, tillage bars, planters, tractors or a separate dedicated liquid cart. Obsolete spray carts can be repurposed as liquid carts.
- We recommend polyethylene molded liquid tanks with full draining sumps for complete product extraction and thorough tank cleaning. For optimal system performance, plumbing, including return lines, is installed at the tank's base. It's crucial that return lines are positioned to prevent any aeration of the liquid product.
- Think about mounting location of liquid pump module. LQS Modules are self-priming and positive displacement, so they can be placed at any height.
- Consider plumbing distance from the pump module to the tillage bar, closer is better to the distribution kit for improved responsiveness.
- Ensure you have easy access to the front and back of the module for flushing and any required maintenance.
- Ensure the mounting location does not interfere with the functionality or maintenance requirements of the implement.

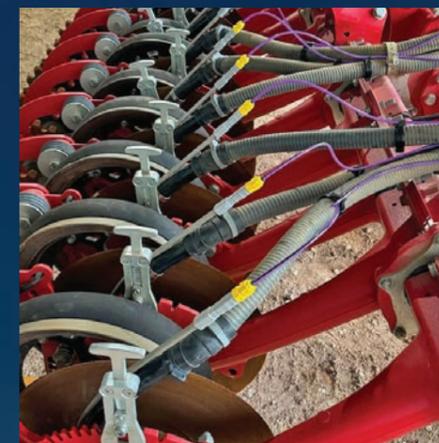
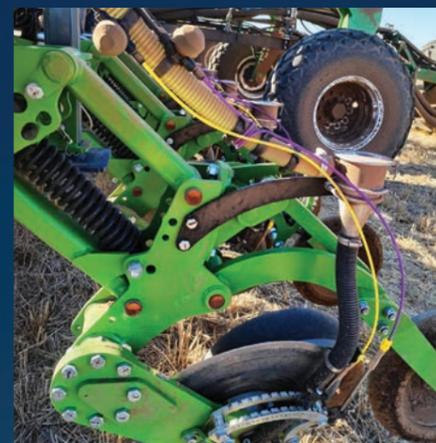
**ANDREW POLKINGHORNE, SA** "Our country is story, so we have to slow down when seeding, with Liquid Systems, you can still maintain a continuous stream & that's an important part of achieving a positive field response. It changed the profitability of our farm dramatically."



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## LIQUID LINES TO THE OPENER

- Where in the soil profile do you want the liquid applied?
- What tillage implement are you going to use? Does the tillage opener already accommodate a liquid delivery line or do you need to retro fit a line to achieve correct liquid placement?
- For row crop planters, is there a suitable location to attach delivery tube to the row unit. What kind of attachment will be required to achieve this? Is there a suitable attachment device available off the shelf?



# VARIABLE RATE



## PRECISION AG INTEGRATION

- What Precision Ag Displays and Controllers do you have already? Can they be used for liquid application? Not all controllers have liquid capability.
- Do you have irregular shaped paddocks or soil variations that could benefit from prescription Variable Rate Application or section control? This can be a great way to minimise overlapping, increase efficiency and gain great savings on input costs.
- Do you have the capability to generate prescription maps for your paddocks?
- Do you have enough screen space on your existing display for monitoring all applications or would an additional display be useful.
- Discuss all your options with your Precision Ag dealer.
- Get pricing for additional displays, control units and wiring harnesses required to add a liquid control channel to your existing setup or to implement a standalone control system.

**SAM KELLY, NSW** "Liquid Systems equipment was Trimble-ready, allowing me to plug it straight in and operate off the one screen. The metering gives accuracy, which saves money. You're saving money all the time, which means you get back the cost of the system tenfold."



 [READ CASE STUDY CLICK HERE](#)

WE HAVE DEVELOPED ALL OUR OWN WIRING LOOMS TO MAKE PRECISION AG INTEGRATION SUPER EASY. ALL LIQUID SYSTEMS (SA) MODULES ARE COMPATIBLE WITH MANY LEADING BRAND DISPLAYS FOR ULTIMATE VARIABLE RATE FLEXIBILITY.



# SURVEY

## WHY GROWERS GO LIQUID

In January 2022, we asked Liquid Systems (SA) customers why they converted to in-furrow application of liquid crop inputs, how they used their equipment and the benefits they'd seen from it.

About 93% said farm profitability had improved with in-furrow application, which usually delivered quicker crop emergence (88%) and yield responses of more than 5% (73%). Many of those surveyed (18%) reported yield responses of 15% or above.

Almost three-quarters of customers use their Liquid Systems (SA) gear to apply three, four and even five or more products in one hit.

More than half (54%) indicated the use of in-furrow liquids had reduced how much spraying they had to do during the season.

So it came as no surprise that 74% of those surveyed said using liquids had improved their operational efficiency, reducing fuel and labour costs.

Fungicides (59%), micronutrients (59%) and UAN (55%) were the most common liquids applied in-furrow, although some farmers are also using inoculants (33%), soil wetters (22%), carbon products (10%) and biologicals (9%).

## VOTED TOP THREE BENEFITS

1. Ability to apply multiple inputs in one pass 77%
2. Targeted and even distribution of nutrients 73%
3. Reliable operation 70%

Source: Liquid Systems (SA) survey, January 2022

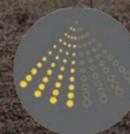
# RESULTS



IMPROVED FARM PROFITABILITY 93%



QUICKER EMERGENCE 88%



REDUCED POST SPRAYING 55%



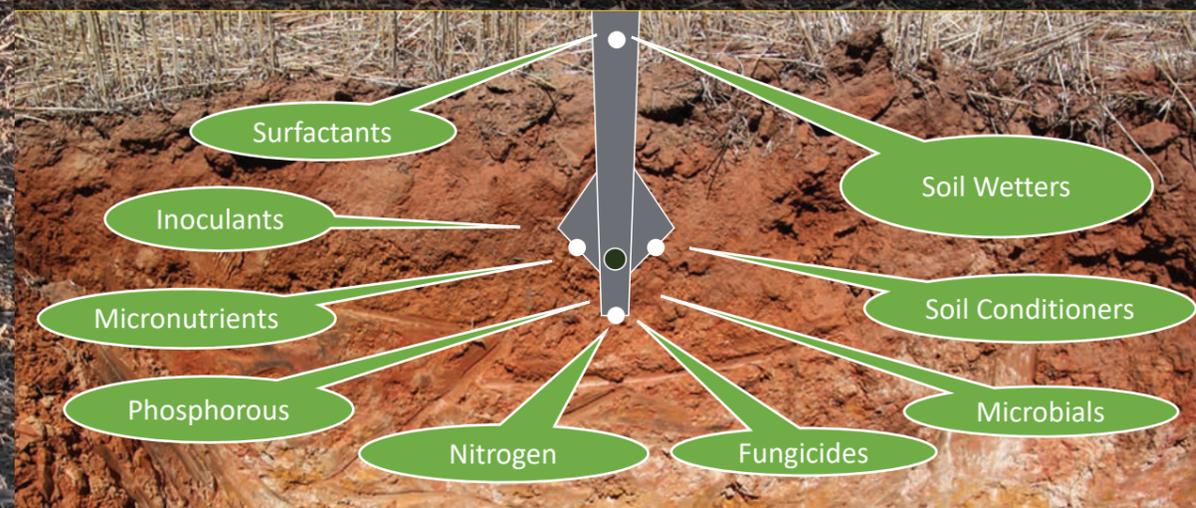
IMPROVED OPERATIONAL EFFICIENCY 74%



INCREASED YIELD 73%

## TOP 3 PRODUCTS APPLIED

1. FUNGICIDES 2. MICRONUTRIENTS 3. UAN



# ENGINEERED TO DELIVER

## ABOUT LIQUID SYSTEMS (SA)

Liquid Systems (SA) is a leading manufacturer of in-furrow liquid application systems. Based in South Australia, the company has been supplying high-quality, reliable liquid application systems globally since 2002. Known for their build quality, accurate rates and ease of use, Liquid Systems' products are trusted by farmers for their superior performance and strong product support.

In Australia, Liquid Systems has been a key supplier of factory-fitted liquid kits for Morris 9 series Air carts since 2004, and since 2010, they have provided dealer-fit kits for John Deere's 1910, C650 and C550 air carts. In 2023, Liquid Systems expanded its reach by launching a new liquid-ready cart range in collaboration with CNH Industrial, designed for Flexi-Coil Australia and Horwood Bagshaw.

Liquid Systems has a robust dealer network across Australia, offering turnkey modules and distribution kits for new and used planters, seeders, and liquid carts. The LQS Range pump and control modules can handle multiple liquids and section control, while the "Stacker" distribution kit can be customized for any size air tool or planter. The system also integrates with leading precision agriculture displays and controllers, enabling advanced features like section control and variable rate application.

With their focus on precision, efficiency, and adaptability, Liquid Systems (SA) is revolutionizing in-furrow liquid application, helping farmers optimize their operations and improve yields.



[PHOTO GALLERY CLICK HERE](#)

Thank you for your time.  
We hope you found the information valuable and insightful.

Ready to get started with in-furrow liquid application?  
Contact Liquid Systems (SA) today.  
We're here with the advice, equipment, and support you need.

Call us at **(08) 8357 4437**  
To learn more and make the switch



[VISIT OUR WEBSITE CLICK HERE](#)

# THANK YOU



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