Nine ideas for building a precision service business
(in no particular order)
1. Pay attention to what the state government wants agriculture to do.
The pattern that we found, is that the water quality in the Upper Mississippi, from the headwaters down to about the St. Cloud area, is really very, very good," said Dana Vanderbosch, manager of lake and stream monitoring with the MPCA. "But then, south of St Cloud, and into Minneapolis, the water quality really starts to degrade, and the river life isn't as healthy."

That northern stretch of the river flows largely through forests and wetlands that help filter out pollutants, but the lower stretch starts to receive a lot more polluted runoff from farms and urban development.

In fact, the Crow River, which flows through heavily farmed areas before it enters the Mississippi near the town of Dayton, doubles the nutrient pollution in the river, causing algae blooms and other problems.

That's despite the fact that the Crow River covers only about 15 percent of the total land draining into the upper Mississippi.

Jan 25, 2017

Governor Dayton Announces New Goal to Improve Water Quality in Minnesota 25 Percent by 2025

February 3, 2017

“25 by ‘25” goal would engage local governments, businesses, farmers, scientists, and others in a new collaborative effort to restore and improve water quality across Minnesota

Without additional actions, water quality is only expected to improve 6 to 8 percent by 2034
Minnesotans are serious about clean water

- The Mississippi, Minnesota, and St Croix watersheds converge near St Paul
- 3.5 million people live within a few miles of these two rivers
- They bike, run, drive, walk, and hike past them.
- Airplanes arriving at Minneapolis get a birds eye view
The confluence of the St. Croix and Mississippi rivers south of the Twin Cities

https://www.mprnews.org/story/2016/05/25/mpr_news_presents
2. Look for trends related to agriculture in data

Examples could include weather trends, crop mix changes, yield trends, industry consolidation
Minnesota Corn Yields

- US Corn yields have been increasing at 2 bu/yr since 1991
- Minnesota is +2.7 bu/ac per year
- That’s nearly 35% higher than the US average

Data Source: USDA NASS

\[ y = 2.748x + 111.82 \]
\[ R^2 = 0.6519 \]

\[ y = 2.0073x + 114.51 \]
\[ R^2 = 0.6539 \]
Consolidation Creates Opportunity

- As the retail sector grows, deals are formed with software companies and large coops
- Precision Ag consultants can be nimble, not tied to a single solution, and can easily adapt

Source: Keri Jacobs, Cooperatives economist, Iowa State University
3. Build trust and earn your place on the farm
Who Are The Most Trusted Advisers?

Recent farmer focus group research conducted by the PrecisionAg® Institute tried to get to the bottom of the question, “Which organizations do farmers consider their most trusted adviser?” Respondents could rate the five business types below on a 1 to 5 scale, where a 5 represented “Highly Trusted Adviser,” and a 1 represented “Just a Transactional Relationship.”

Gauging the TRUST Factor

Independent consultants ranked highest on our trust scale, but retailers and equipment dealers also performed well on the question.

You want to be here

Feb 2017 Precisionag Professional
Influencers on Fertilizer N Rate and Management Decisions

- Crop consultant*
- Fertilizer dealer
- U of M Extension
- Seed/chemical
- Other family
- Agency personnel
- Lender/banker
- Friends/neighbors
- Business partner (not family)
- Spouse

500 growers surveyed
58% response

2012 Grower Survey – Confirms that for Minnesota growers appreciate and value the crop consultant
4. Know your business and the business of the farmer
Six Essential Competencies for Any Precision Staff

Bruce Erickson, E-Learning Director in the Department of Agronomy at Purdue University, has spent many hours examining the role of service providers in precision adoption. In addition to teaching and conducting research at the university, Erickson has in recent years played a key role in the development and interpretation of the CropLife® magazine/Purdue University Precision Services Adoption Survey, now in its 18th year.

His experience tracking the role of the precision service provider has provided him with a unique perspective on how successful precision departments should be structured for maximum success.

"Since its start, precision agriculture has always been multidisciplinary — traditionally a mix of agronomy, agricultural engineering, and agricultural economics," says Erickson.

Not every person will possess all necessary skills, but as a company or department these are the six skill sets Erickson sees as essential:

1. A strong foundation of AGRONOMY KNOWLEDGE — this includes soils, pest management principles, nutrient management, crop growth and development, and crop diagnostics.

2. A strong foundation of TECHNOLOGY KNOWLEDGE — the ability to work and utilize spatial software; move data around efficiently; and understand how sensors, telematics, and controllers fit in the system.

3. A strong foundation of AGRICULTURAL ECONOMICS — an understanding of the business, the farmer’s expected revenues and costs, how to calculate returns on technology investments, and how farmers manage production, marketing, and enterprise risks.

4. ANALYTICAL SKILLS — basic math of calculating field areas, input rates, and crop stands; equipment calibration; how to set up a valid field comparison; differentiating real numbers from normal field variation.

5. COMMUNICATION SKILLS — listening and asking questions to understand the customer’s operation, needs, and preferences; communicating value as much as product features.

6. ETHICS: Acting for the right reasons. Considering people and environmental consequences along with profit motives.
5. Know your risk tolerance and bottom line

and DIVERSIFY
Use a Matrix to Evaluate your Services

- Risk = the possibility of the consultant or tools making an error that could generate a financial claim against your business

- Reward = profitability in terms of $/ac or $ per hour

- Retention = the likelihood that you’ll retain the customer into the next year in the same service
## Example of Ranking Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Risk 1= high 5=low</th>
<th>Reward 1= low profit 5= high profit</th>
<th>Retention 1= low 5= high</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid soil testing</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>12</td>
</tr>
</tbody>
</table>
Customer Retention

- Attrition eats into profits, but it also creates skepticism about the service because farmers talk online and in town.
- Educate and empower growers and then move up the value chain.
- Don’t expect to retain the exact same services year after year.
6. Manage your Time
Allocate your time by service and by month

Example

<table>
<thead>
<tr>
<th>Service</th>
<th>Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil testing</td>
<td>October, April, June</td>
</tr>
<tr>
<td>P,K, lime recs</td>
<td>July, October, March</td>
</tr>
<tr>
<td>Irrigation scheduling</td>
<td>May, June, July, August</td>
</tr>
<tr>
<td>GIS Consulting</td>
<td>All</td>
</tr>
<tr>
<td>Grant Work</td>
<td>All</td>
</tr>
<tr>
<td>Nitrogen Recommendations</td>
<td>March, April, May, June, October</td>
</tr>
<tr>
<td>Imagery</td>
<td>April, May, June, July</td>
</tr>
</tbody>
</table>
7. Take a new twist on an old service
Some farmers in Minnesota will spread P and K fertilizer for two crops on land they own.

Value creation:
1. Low stress time to make recs
2. Fertilizer can be applied as soon as conditions are fit after harvest
3. Can discuss fertility with landlord
4. Can shop around for fertilizer price

Soil testing June 2017
Data Visualization tools are making the process of turning data into information simpler.

Microsoft “Power BI” is one option included as part of Office 365.
Provide options and be ready to coach your growers on strategies for fertilization.

<table>
<thead>
<tr>
<th>FLAT RATE RECOMMENDATION</th>
<th>LB/AC</th>
<th>TONS / FIELD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DAP</td>
<td>POTASH</td>
</tr>
<tr>
<td>University of Minnesota</td>
<td>152</td>
<td>182</td>
</tr>
<tr>
<td>Iowa State University</td>
<td>180</td>
<td>208</td>
</tr>
<tr>
<td>Maintenance Approach</td>
<td>153</td>
<td>81</td>
</tr>
<tr>
<td>(Crop Removal)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| VARIABLE RATE RECOMMENDATION              |       |              |       |        |

MN and IA recommendations are provided on separate pages.
8. Offer a new service on a limited basis
Water as a percent of Field Capacity

1” of water costs about $6-7 in diesel fuel
2” and 18” sensors

2” and 22” sensors
9. Conduct On-Farm Replicated Trials

Partnerships with grower organizations, universities, and/or companies looking to promote and test their products
Everybody Wins with Research

• The grower gets paid and gets local data
• The consultant gets paid
• The company gets data, which helps them market new products OR
• The University / Farmer Organization gets data to help build local databases
Final Thoughts

◊ Growers pay for tax advice, legal advice, and financial advice. If they place a value on precision agronomy they’ll pay for that advice too.

◊ Be prepared to drop services if they aren’t providing value to the grower.

◊ Keep an eye on Wall Street. The venture capitalists have huge amounts of money and are counting on us to generate ROI.

◊ WSJ May 15 2017 “Instead of betting on legions of companies that provide farmers information, they’re now pumping money into companies that offer tools and services, such as robotic farm equipment, or on biotechnology and genetic editing of plants, that bring faster and more obvious results.”