



HY+Q PROGRAM FINAL REPORT
Fiscal Year 2017

OVERVIEW:

The High Yield PLUS Quality (HY+Q) project was phenomenally successful in FY2017 because the Blue Spring Communications team pioneered a method to identify soybean value at the variety level. This breakthrough uncovered multi-billion-dollar value improvement opportunities and solidified a position for Illinois and the U.S. Soybean Export Council as leaders in composition advancement. Several advances have set the stage for ISA and USSEC to transition the HY+Q program from research and development to a commercial operation that advances soybean quality and value in FY2018. Advances include the following:

- Created an easy method to compare the feed value of individual soybean varieties by converting whole soybean samples into “virtual meal” and comparing the value of those samples in the same ration formulation software that customers use.
- Discovered the difference in feed value in varieties can be nearly \$3 per head of hogs in a finishing operation. Feed value differences in poultry are predicted to be greater.
- Pinpointed a significant value improvement opportunity in every soybean-producing state.
- Confirmed the USSEC was right that amino acids and oil give value to soybeans.
- Discovered the three-state EAA coalition is counting value of essential amino acids in a way that is mathematically inverse to value.
- Discovered there are two high-value essential amino acids in soybeans that have great marketing potential. Isoleucine and valine lack cheap synthetic alternatives, which means soybeans high in those EAAs are especially valuable.
- Reinforced beliefs that processors are profiting at the expense of farmers and livestock nutritionists by selling soybeans based on protein and selling soybean hulls for protein prices.
- Discovered that while oil and protein have a negative relationship, oil value and feed value present little or no trade off.
- Found that protein has a very weak (yet still positive) relationship with soybean value in livestock feed.
- Discovered that soybeans above 35 percent protein and 19 percent oil have a very low relationship to livestock feed value.
- Confirmed that HY+Q “breakthroughs” are accepted to the customers who buy soybeans.

OUTPUT(S):

Target: Agronomic and protein and oil data from up to 15 agribusinesses

Result: Mixed. Samples were collected from 13 seed companies and agribusinesses. Participation increased by nearly 30 percent, including adding a multinational seed company and two national companies to the sampling program:

Seed Company	2014 Samples Received	2015 Samples Received	2016 Samples Received
AgReliant	90	106	154
Baird Seed Company	0	13	0
Baker Seed	8	7	6
Bayer CropScience	18	0	14
Beck's Hybrids	319	422	381
Burrus Seed	0	5	
DuPont Pioneer	36	47	14
Great Lakes Hybrids			54
Growmark			190
JCB Ag Research	0	60	58
LG Seeds	0	222	223
Munson Hybrids	8	0	0
Schertz Aerial (aka Yield Challenge)	16	23	56
Schillinger Genetics	11	17	19
Soy Capital	29	49	60
Stine	0	25	0
Syngenta Seed			48
Seed Companies TOTAL	535	996	1277

Target: One new multinational seed company working with HYQ and exploring agronomics and protein and oil data

Result: Success. Monsanto agreed to participate and then failed to deliver on their commitment. Syngenta joined the sampling program, delivering the win in this output.

Target: A research relationship with one new regional seed company

Result: Surpassed. Great Lakes and Growmark joined the sampling program in FY 2017.

Target: Five QSSBs working with HYQ to replicate IL/ISA success with their selected local seed companies to value soybean composition leading to improved protein and oil for their varieties

Result: Fail. Invitations were sent to all soybean states directly and through USSEC. The invitations to collaborate are still pending a response.

Target: Ten new stakeholders to work with HYQ

Result: Success: This was achieved or surpassed through conversations that are ongoing:

1. Dr. Shawn Conley, University of Wisconsin - consulting relationship
2. Dr. Bart Borg, Standard Nutrition Company - nutrition expertise
3. Chris Hostetler, National Pork Board - customer relationship, sustainability lead and potential feed study
4. Mike Borgic, Illinois Pork Board - grower meeting and possible working relationship

5. Dr. Hans Stein, University of Illinois - research and consulting relationship
6. Dr. Nick Bajjalieh, Integrative Nutrition - consulting relationship
7. Eric West and Megan Bachmann, Growmark - research and marketing relationships
8. Dr. Omar Mendoza, Maschoffs - customer relationship
9. Travis Dollarhide and Kim Robertson, LG seeds - marketing and communications
10. Chris Haag and Christy Zeller, Ag Reliant - marketing relationship

Target: HYQ visits with at least 25 industry partners by phone or in person

Result: Success. This was achieved through numerous seed company meetings and in the two meetings at Commodity Classic.

Target: A Quality Advisory panel established

Result: Mixed. ISA has a panel but they were not communicated with

Target: HYQ website completed and maintenance ongoing

Result: Success. Soyvalue.com was created and used in FY 2017, and revised for enhanced use in FY 2018. There were more than 500 farmer visits based on a single postcard mailing to 1,500 farmers by the University of Minnesota. We also collaborated with the ISA team on developing the new ISA website.

Target: HYQ presence at one major trade show

Result: Surpassed. We showed at Farm Progress, hosted two meetings at Commodity Classic and attended the Midwest Shipper Conference.

Target: Two FFA programs with news releases in the largest local newspapers

Result: Deferred. Not attempted this year.

Target: WISHH soybean shipment connected with HY+Q

Result: Not attempted.

OUTCOME(S):

Target: Progress toward 35% protein and 19% oil in harvest samples

Result: We discovered that the 35/19 goal hides soybean value and reset the goal to maximizing visibility of value being driven by essential amino acid levels.

Target: Consistent 48% crude protein in soybean meal

Result: We discovered that crude protein is weakly correlated with soybean value and reset the goal to advance value based on oil and levels of seven essential amino acids.

Target: Teamwork on compositional quality efforts with USB, USSEC, and within the checkoff family and soybean production states aware of HY+Q efforts

Result: Success. Teamwork advanced to a new level in FY201. The USSEC teamwork played a key role in the breakthrough.

Target: Growing interest of additional QSSBs and USB in working with seed companies on compositional quality

Result: Mixed. QSSBs showed little interest other than to say “congratulations,” or to concoct a diversionary conspiracy theory that HY+Q invented new software to prove soybeans in other states are inferior. Meanwhile, USB showed sharply increased interest in cooperating with HY+Q in FY 2017 because we put soybean value in a positive new spotlight that’s now impossible to ignore.

Target: Increased momentum and support for protein and oil improvement across the soybean industry

Result: Success. There is increasing interest in HY+Q across the industry. It is now centered on essential amino acids, not protein.

Target: Pathway for farmers to easily access information about varieties with higher protein, oil yields and asking seed companies for high-quality seed

Result: Surpassed. The team created Soyvalue.com, which took reporting about variety-level value to a high level.

Target: Farmers understand the ‘unseen’ value, or loss of value, for lower quality soybeans

Result: Success, through more than 500 farmer views on Soyvalue.com and news articles that were generated.

Target: Industry partners support ISA in its quality/composition improvement programs

Result: Success, through the relationship with USSEC and National Pork Board.

Target: Farmers capture maximum value for their soybeans and recognize benefits of growing soybeans with unsurpassed quality

Result: Progress is pending.

Target: Student program expanded with a focus on sending the market signal to seed companies and raising farmer awareness about quality.

Result: Project was deferred.

Target: Illinois soybeans are preferred in the market place

Result: Success pending. This is feasible only through container shipping because it is otherwise not possible to identity-preserve soybeans based on value.

Target: US soybeans overcome international competition

Result: Pending.

Target: Branding program successfully rallies the market place around high-quality U.S. soybeans

Result: Initial success has been achieved through HY+Q discovering value at the variety level and developing a website to report on it.

Target: Seed company acceptable of the research costs for developing high yield and high-quality varieties

Result: We are shifting the conversation to center on maximizing value of seed that's already on the market, making research costs irrelevant because they are already captured in operating costs.

What were the constraint(s) on meeting the project Objective?

1. States have stated goals of being recognized for better quality than other states vs. a shared commitment to cooperating on value for national and local gain.
2. Different objectives of USSEC, USB, and states make consensus elusive.
3. Attempting to cooperate with long-term USB science and strategy goals significantly increases the cost and time to achieve short-term ISA science and marketing success.
4. ISA directors need to be fully informed of program discoveries, opportunities and progress.
5. Focusing on rehashing program barriers instead of leveraging facts or existing research which easily overcomes those barriers cost months of progress. For example, we spent 9 months with progress pending replicated plot data then it was discovered that the checkoff had thousands of samples from replicated plots dating back to 2005.
6. The national checkoff strategy delayed amino acid value from being fully explored dating back to at least 2010.
7. Checkoff leadership are relatively uninformed on the basics of nutrition science, nutrition software functionality, and agronomic practices. This makes easy decisions more difficult and time-intensive.

Describe how you accomplished your Project Performance Measures:

We accomplished project performance measures through relentless dedication to innovative strategy, sound science, efficiency, perseverance, and creativity.

Was the project Output(s) effective in moving toward the planned Outcome:

Yes.

Were the right expected result/time frame established:

No. The results being centered on protein were off target.

Was the right audience targeted:

Yes and no. Seed companies and farmers are the right places to focus. Checkoff teamwork wastes time unless it's done with courage and conviction that marketing best practices reliably work everywhere they are tried.

Were the right amount of resources invested:

Yes.

What lessons were learned:

1. Oil and levels of seven essential amino acids drive all soybean value in livestock feed, with protein being weakly correlated to value.
2. USSEC is an exceptional example of a checkoff team dedicated to a spirit of true teamwork for the benefit of soybean farmers and their customers.
3. The national checkoff made decisions that kept amino acid value in the social and science margins instead of at the center of the conversation.
4. There are billions in hidden value standing ready to be put in the marketing spotlight.
5. Taking simple commercially proven steps to serve famers and soybean customers is now possible thanks to ISA leadership and its commitment to innovation.

If applicable, how will you disseminate the information generated by the project:

1. News releases
2. Soyvalue.com
3. Customer value reports
4. Certificates of excellence and appreciation
5. Value improvement blueprints
6. Presentation's to seed companies.

If applicable, what will be the impact on whom in the soybean industry and how:

Impacts will be three-fold: 1) farmers will know what their soybeans are worth to end users and factor that information into seed selection choices; 2) seed companies will know which varieties have the highest value to oil and livestock customers and take action to advance high-value varieties; and 3) processors will someday be inspired to develop a new pricing structure that recognizes essential amino acid value.