

Horticulture Innovation Australia

Final Report

International Onion Research Delegation

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Onions Australia

Project Number: VN16001

VN16001

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Summary

Onions Australia successfully hosted two international onion experts in Australia under VN16001, funded by the onion industry levy and approved by Hort Innovation.

Jacob Wiskerke from Wiskerke Onions in the Netherlands and Dr Bill Dean from River Point Farms in the US were guests of the Australian onion industry as part of the inaugural Hort Connections event in Adelaide from May 15-17.

Mr Wiskerke is the head of the largest onion exporting company in the world, while Dr Dean is a consultant with the largest onion growing operation in the US.

The international onion research delegation imparted much knowledge on those attending their speaking sessions, covering a raft of topics from pest and disease control, best on farm practice, optimum storage methods, water challenges, current research and development, international market challenges and fertilizer advances.

The delegation was spread over formal and informal speaking sessions, as well as visiting three farming operations to ensure that a wide spectrum of growers could access the information. Attendance tallies show that 85pc of onion production in Australia was able to attend at least one of the sessions.

The project enabled a mix of one on one meetings, group discussions, question and answer sessions, farm visits, technical presentations, international perspectives and tips for best practice on farm.

The international experts were exceptionally well received and it was obvious that those attending their sessions took the opportunity to further their knowledge of both national and international world best research and development practices.

The project was completed both on budget and within specified timeframes.

Keywords

Onions; international speakers; research and development; Wiskerke Onions; Riverpoint Farms; Bill Dean; Jacob Wiskerke; allium;

Introduction

Australian onion growers have demonstrated a high level of productivity, however together with peak industry body Onions Australia they are now trying to explore ways of accessing international markets.

It was therefore deemed appropriate that the next step in broadening their knowledge was to bring in world experts on international onion market access and supply chain demands.

It was decided that there would be great advantage in sourcing advice from such experts who were able to outline best practice international methods, as well as the latest developments in pest and disease research, which would in turn benefit Australian growers.

Australian growers currently benefit from multiple Hort Innovation funded R&D projects, however these projects have been limited to Australian endeavours. It seemed a natural fit to look internationally to enable levy payers to expand their knowledge and access international markets.

The project allowed two such international experts to visit Australia to speak in a series of sessions accessible to all Australian onion levy payers.

The main session was held as part of the Hort Connections conference, held in Adelaide from May 15-17 and attended by an estimated 2000 delegates.

Sixty people attended the presentations by Jacob Wiskerke, head of Wiskerke Onions which is the largest onion packing and exporting company in the world, and Dr Bill Dean, a consultant at River Point Farms, which is the largest onion farm in the US.

Wiskerke Onions specialises in the processing, packaging and distribution of a wide range of onions. It is a well-founded family business that has been passed down through the generations since 1933, ensuring the wealth of knowledge and expertise remains incorporated within the company.

Mr Wiskerke started as the third generation in his family's small business on January 1, 1980. At the time Wiskerke Onions was packing 5000 tonnes of onions a year and selling to exporters.

After 35 years the business was packing 150,000 tonnes a year and exporting direct to more than 90 countries. Currently Wiskerke Onions every week produces more than one million consumer packs – hence earning the title of the number one packer and exporter in the world.

Last year the business packed 165,000 tonnes of onions which were sold to more than 100 countries.

The company is now in the hands of the fourth generation, as two years ago Mr Wiskerke and his wife Lenny sold the company to daughter Chayenne.

Mr Wiskerke spoke about how his company had specifically targeted export markets, as well as how it had developed niche domestic markets with its new peeled prepacks.

Dr Dean is synonymous with the name River Point Farms, a family farm, fresh, sustainable, grower,

packer, fresh-cut processor, shipper, and year-round supplier of onions.

River Point Farms supplies yellow, red, white and sweet onions, annually producing 450 million pounds of onions. River Point Farms is the leader in onions and largest producer of onions in the US, having set the standard for growing, storage, packaging and fresh-cut processing systems.

Until recently Dr Dean was the Director of Research, Technology and Quality Control Part, and remains part of the management team.

Dr Dean is a widely respected leader of the onion industry in the US, based in the Columbia Basin, Oregon US, overseeing approximately 2000ha producing ~175,000 million tonnes.

Rhizoctonia stunt is also a significant disease of onions on River Point plantings in the Columbia basin and Dr Dean has been associated with many trials conducted on River Point farms and has hosted visits by Australian researchers and growers.

Dr Dean spoke about pest and disease issues that River Point Farms has faced and overcome, as well as trials relevant to Australian growers, and ways of embracing world best practice.

Methodology

Dr Bill Dean and Jacob Wiskerke featured as keynote speakers at the Hort Connections event in Adelaide on May 16. While their presentation was targeted for Australian onion levy payers, the session was open to all horticulture levy payers, with a total of 60 people attending. This ensured that those in attendance were able to source information about accessing international markets.

Those attending provided a diverse group, with onion levy payers from most states of Australia in attendance, along with industry representatives from throughout the supply chain.

Dr Dean opened the speaking session, delivering a 45 minute presentation entitled "45 Years in the Field and in the Plant".

The presentation featured three key components, being climate change, sustainability and certification.

Mr Wiskerke was the second speaker, delivering a 45 minute presentation entitled "Powerhouse Holland".

His presentation outlined the Dutch onion industry, featuring an impressive snapshot of crops costs from the paddock to the plate, with each aspect of the supply chain broken down into the cost of production.

Dr Dean then travelled to RinPra Produce at Murray Bridge (85km from Adelaide) to meet with levy payers in a group situation, taking part in a question and answer session with 15 onion growers.

The group undertook a packing shed tour before Dr Dean asked the levy payers attending to take part in the question and answer session so that they could ask him specific questions in a less formal atmosphere, rather than take part in another sit down formal presentation.

There was plenty of active engagement between Dr Dean and the growers, who took the opportunity to ask about premium storage conditions, optimum soil nutrition, pest control and the challenges associated with harvesting such a huge crop.

Dr Dean and Onions Australia CEO Lechelle Earl then travelled to Tasmania to meet with onion levy payers. This visit included visits to Sumich Group and Charlton Farm Produce to meet one on one with their agronomy teams, as well as packing shed tours.

After Dr Dean toured each facility the farms' agronomists and packing shed managers took the opportunity to speak directly with him, seeking advice on chemical application, best practice water application rates and the most applicable chemical treatments to combat pests and diseases. Dr Dean's experience in pest and disease treatment over pivot crops proved extremely advantageous.

The final leg of the Tasmanian trip included a formal presentation at the Forth Football Club, which was attended by 40 industry representatives with access to 85pc of production in the state.

There was an even attendance of levy payers and agronomists, which, given the method of crop management in Tasmania whereby growers are contracted by major packhouses who oversee every

aspect of the crop and their agronomists are the link between the grower and contractor, ensured excellent conveyance of the information.

Dr Dean's Tasmanian presentation was entitled "Dream, Reality and a Vision", and spanned 45 minutes.

The key topics were growing the best onions, increasing production, and harnessing optimum yields and quality. Once the presentation was completed, those attending took part in a question and answer session, before taking the opportunity to speak one on one with Dr Dean during a barbecue dinner.

Outputs

Keynote presentations from Dr Bill Dean and Jacob Wiskerke at Hort Connections, Adelaide Convention Centre: Attended by 60 people spanning all aspects of the Australian onion industry, with strong representations by levy payers. Presentations titled "Powerhouse Holland" and "'45 Years in the Field and in the Plant".

Packhouse tour and question and answer session at RinPra Produce, Murray Bridge: Attended by 15 levy payers.

Visit to Sumich Group and Charlton Farm Produce, Tasmania: Tour of packing sheds and storage facilities, followed by one on one sessions with on farm managers and agronomists.

Presentation to industry group, Forth Football Club, Tasmania: Attended by 40 onion industry representatives. Presentation titled "Dream, Reality and a Vision".

Outcomes

- Extend R&D to growers from leading onion industry experts from the US and the Netherlands;
- Expose growers to new information that may be considered for on-farm and supply chain practice change including changes in insect and disease control, fertilizer and irrigation practices, supply chain and consumer markets;

The key talking points that were delivered through the presentations in Adelaide, Murray Bridge and Forth centred on international market opportunities, sweet onion development, combatting white rot, optimum soil conditions, irrigation best practice, quality control, constraints to changing practices, storage facilities and the importance of reliable agronomy.

Jacob Wiskerke's presentation was a big picture explanation of how he had built a successful export program, including an overview of the international market, highlighting how niche markets could be accessed and then developed.

Bill Dean's series of presentations delved deeper into technical aspects of onion growing.

He maintained a consistent theme of knowing your crop and soil and monitoring the factors such as rooting depth and nutrient levels.

The effect of pH and soil potassium levels were key to healthy onion yields, making it imperative to monitor leaf tissue potassium through the season.

Dr Dean simplified this message to say that it was important to 'do the right thing at the right time', making nutrient recommendations, overseeing fertilizer trials and observing water quality.

There was much discussion and questions following particularly Dr Dean's presentations, highlighting the interest from Australian onion levy payers into how the rest of the world was achieving optimum yields and quality.

Evaluation and Discussion

The attendance at the series of international speaker sessions highlighted the keen interest from Australian onion growers to learn more about world best practice research and development methods.

Those attending were surveyed as to how they evaluated the speaker sessions, with extremely positive responses.

Those responses included:

"This was a 10/10 session with an unconventional but pragmatic approach to push the boundaries of commonly held opinions with real data that determined decisions and conclusions";

"The most beneficial aspect was the international insight";

"Bill Dean was a very knowledgeable speaker";

"Bill was a great speaker and I appreciated the quality content".

One of the attendees suggested that as a follow up to the presentations the APVMA could attend an onion industry levy payers' meeting to outline chemical permits and their relationship to international chemical use, which is something that Onions Australia will be following up.

While there was a diverse range of attendees at the Adelaide international speakers session, one of the highlights was the on farm visits to Sumich Group and Charlton Farm Produce, where the farm managers and agronomists took the opportunity to have one on one information exchanges with Dr Dean. These meetings stood out as exceptional given the high calibre of discussions. Key discussions centred around ways to establish an Australian sweet onion industry, as well as methods from the US as to how to combat and eliminate white rot, based on Dr Dean's extensive expertise in that area.

One of the agronomy teams focused about irrigation methods, given the challenges of onion growing in Tasmania where the countryside is not flat. Irrigation channels and rip furrows were discussed, along with ensuring the uptake of fertilizer in such difficult onion paddocks.

It was evident that everyone who had the opportunity to speak with the international experts came away armed with research and development information that would enable them to improve their growing methods.

Recommendations

Further international experts to visit Australian onion levy payers;

Reciprocal visit to The Netherlands and the US to see firsthand how these operations run and understand the on farm management practices;

Ensure that visiting experts are taken to key onion growing regions to ensure that the widest range possible is given to growers to meet and have discussions with experts;

Further attendance by international onion experts at events such as Hort Connections where representatives from whole of industry can learn about the latest world best practice research and development;

Scientific Refereed Publications

None to report

Intellectual Property/Commercialisation

No commercial IP generated

References

Nil

Acknowledgements

Jacob Wiskerke, Wiskerke Onions, The Netherlands

Dr Bill Dean, River Point Farms, US

Sumich Group, Tasmania

Charlton Farm Produce, Tasmania

Appendices

"45 Years in the Field and in the Plant" – Dr Bill Dean

"Dreams, Reality and Vision" – Dr Bill Dean

Link to "Powerhouse Holland" – Jacob Wiskerke

Dreams, Reality and Vision

Dr. Bill Dean

Vice President of Research and Quality Control

River Point Farms



Old or Young?



Old or Young

What you see may
depend on:

- A. Your dreams
- B. Your reality
- C. Your vision of what
could be.



Dreams

Marriage starts with two outlooks and a vision:

- A. Bride's expectations
- B. Husband's expectations

Vision:

We are going to be forever happy!



Our realities: The video producer, the preacher and the chef. A great marriage of 43 years.



Dreams, reality and visions

Seeing them find their way.

Offering guidance and encouragement.

Auto accident (hard times)

Diabetes (more hard times)

Seeing them become successful young men

Dreams, Reality and Vision; The next generation.



Creating dreams, reality and vision

Composite of experiences

Environment

Where you live

Who you are with

Education

Primary and secondary education

Job experience

Mentors

My dreams during and after college

Feeding the world (1970's)

Solving intricate problems

Teaching the next generation

Developing new technologies

My tool box was full: bring on what needs fixed!

Reality: “The Dream Busters”

A. Societal reaction to GMOs

a) “Franken foods”

b) Don’t put chicken in my tomatoes

B. Energy costs increase

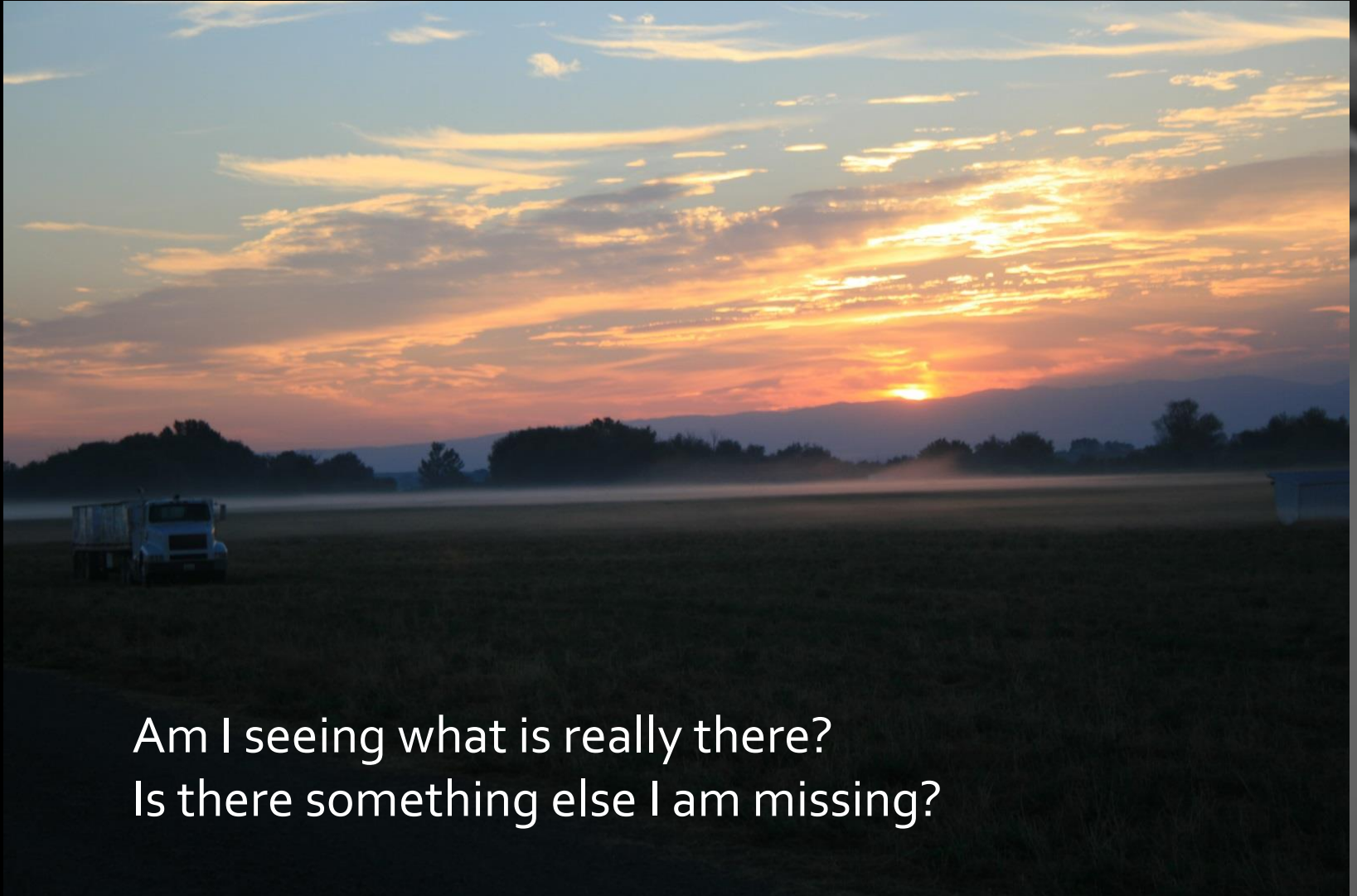
C. Cost of fertilizer goes up

D. Food is contaminated with pesticides

E. Ground water is contaminated with nitrates

F. My food is not safe to eat

Dreams, reality and vision today



Am I seeing what is really there?
Is there something else I am missing?

River Point Farms, Oregon USA

5000 acres/2000 ha



Dream and my focus

Growing the best onions

Increase in production each year

High Yields 45 t/a (100+ mt/ha)

Quality (90% pack out)



“The Bosses Dream” (scary)

New variety

Mild/sweet flavor

Late winter early
spring market
(March)

Problem:

Has not been stored
past December



Conventional bin storage



Hey Bill, "Can you build a storage and use technology to store this onion for 7 months?"

February-April
Started with an old idea



Phase two testing

New bins



New test parameters



Beginning construction

Flexible design (bulk or bins)

Total Environment control

Suitable capacity (8000 tons)



Reality

Building completion in 3.5 months.

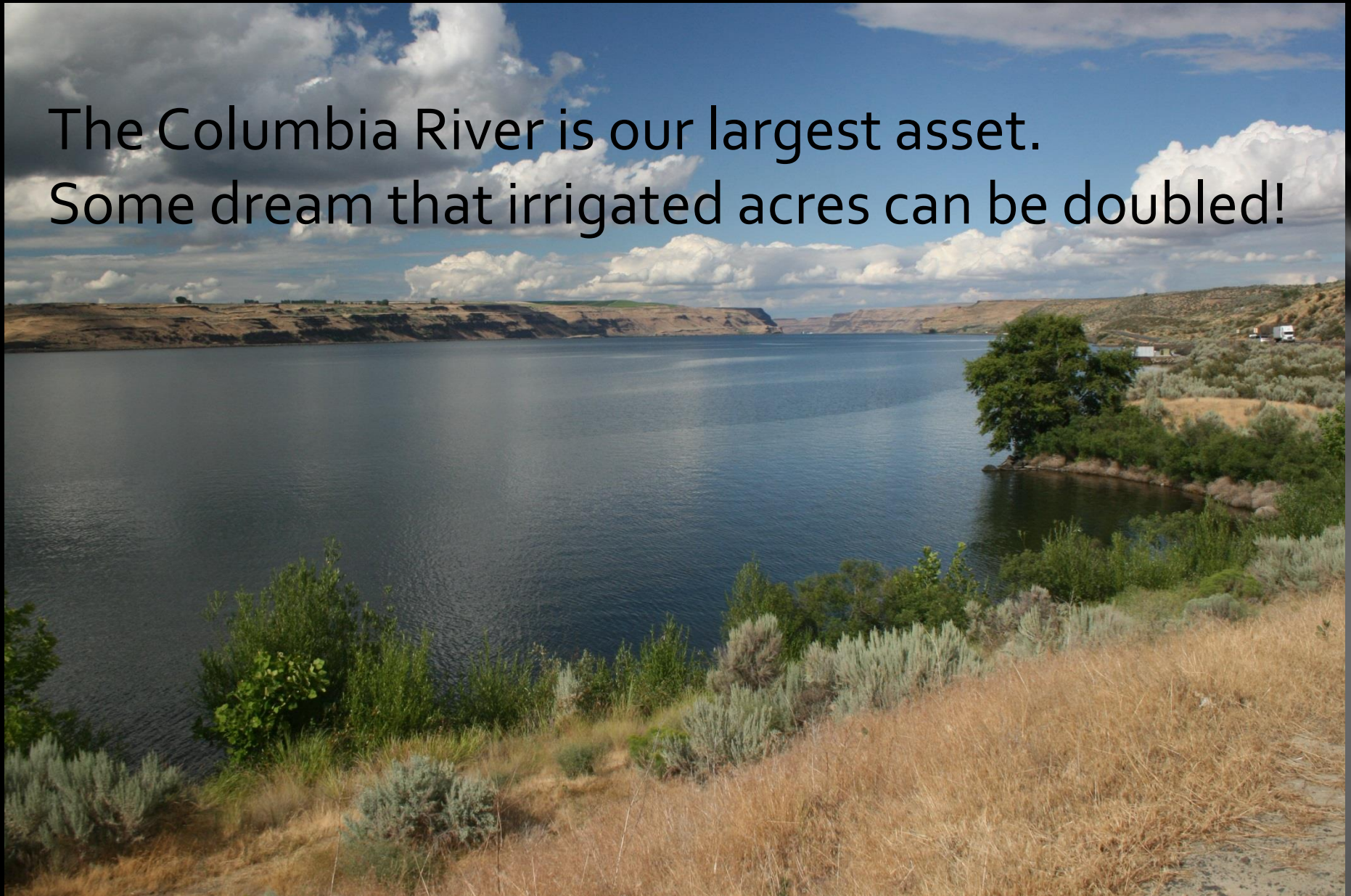
Proprietary bins.

Onions stored for 7+ months!

New possibilities have opened up. (10 months)



The Columbia River is our largest asset.
Some dream that irrigated acres can be doubled!



Dream of local residents (and EPA, DEQ): Good, clean water for drinking.

Ground water is contaminated

*Nitrates (past
practices? >7 mg/l)*

Indicator of other?

GWMA established 1990

Proposed prescription fertilization?



GWMA Sub-committees

Irrigated Agriculture

Municipalities

Rural Residential (septic systems)

Food Processors (waste water)

Concentrated animal feeding
operations

*Look at sustainable
practices*

Fertilization practices

Irrigation practices

Summary of presentation at the conference

We (RPF) have reduced fertilizer use 50%+

Implementation of soil moisture monitoring

Reduced cost of production

Maintained quality and yield

Reduced ground water issue?

New Reality?

Headlines: September 26, 2013

Colorado farmers arrested in fatal
listeria out break.

Spinach suspected in poisonings.

Onions tainted with listeria.

Dream of safe food:

Food Safety Modernization Act (2014?)

Food and Drug Administration

Good Agricultural Practices US Department of
Agriculture 2006-10

Harmonized Good Agricultural Practices

2011-13

Global Good Agricultural Practices

2013

Reality (must have been chemistry class)

P.h.D (Porta-Potti haven Director)

Monitoring toilets

Food Safety is a primary focus

- Water disinfection
- Hygiene
- Maximum residue limits
- Pathogen testing



New Reality

- 1) Develop Standard Operating Procedure for every step of production, harvest, packing and processing
- 2) Document when it is done
- 3) Verify that it is effective
- 4) Satisfy the customer

Training people takes the most time



Decisions each day

New or continued disease threats

IYSV (Idaho and Eastern Oregon)

Rhizoctonia

Sour skin

Insect pressure

Labor shortages (30-40% short) Immigration reform?

Markets

Climate Change

One Dream Fulfilled!



Vision

Develop New Leaders:

Provide scholarships and internships

Invent or Use New Technology:

Put money into inventions and use of new capabilities

Input Evaluation

- Fertilizer use determinations
- Energy consumption

Variety development

Food Safety: constantly improve

Find your next dream (or the bosses)
Don't let reality kill the dream
Look for what else might be there (vision)

Dr. Bill B. Dean
Vice President, Research and Quality Control
River Point Farms





45 Years in the Field and in the Plant



Get It Right

- “Integrity is doing the right thing even when no one is watching” C.S. Lewis
- “The time is always right to do the right thing.”
Dr. Martin Luther King
- “Do the Right Things at the Right Time” .
Bill B. Dean
- Do you ever wonder how long it will take to “Get it right” ?

There have been times in my career that I wondered if I would ever “get it right” .



Then we would harvest a 50+ ton per acre (22MT/ha) onion crop!



- 1) Climate change and our weather. Can we do anything about either?
- 2) "Sustainability" , is it a possibility?
- 3) Which certification should I use to sell my product?

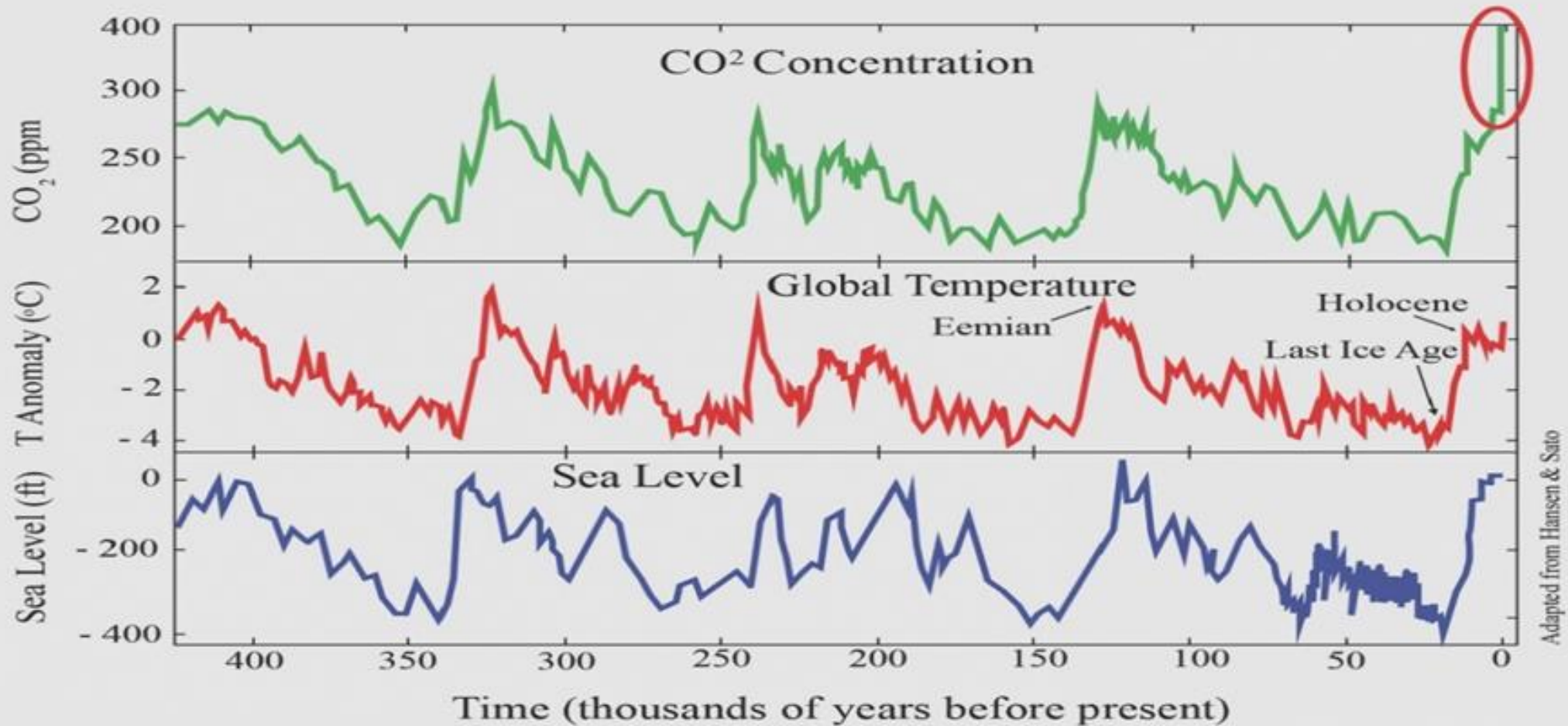


Take Home Lessons

- We often say we cannot do anything about the weather. I think we actually do.
- We say we did the best we could.
 - Was it the right thing?
 - Was it at the right time?
- We say to the customer this is what I have to sell. Was it what they wanted?




Changes in Global Temperatures, CO₂ Concentration and Sea Level Rise during the past 420,000 years





Right Thinking about Climate Change?

- There is little disagreement of whether or not global climate changes are occurring. However, these changes are over very long periods of time. It is hard to imagine how we can incorporate these changes into an action plan even on large operations such as River Point Farms. But we must try.



So what? What is the right thing to do about climate change?

- Go to a climate change conference?
- Stage a sit-in at a government office?
- Protest in the streets (for or against)?
- Stop using non renewable sources of fuel (or not)?
- Pay attention to your operations “Life Style”



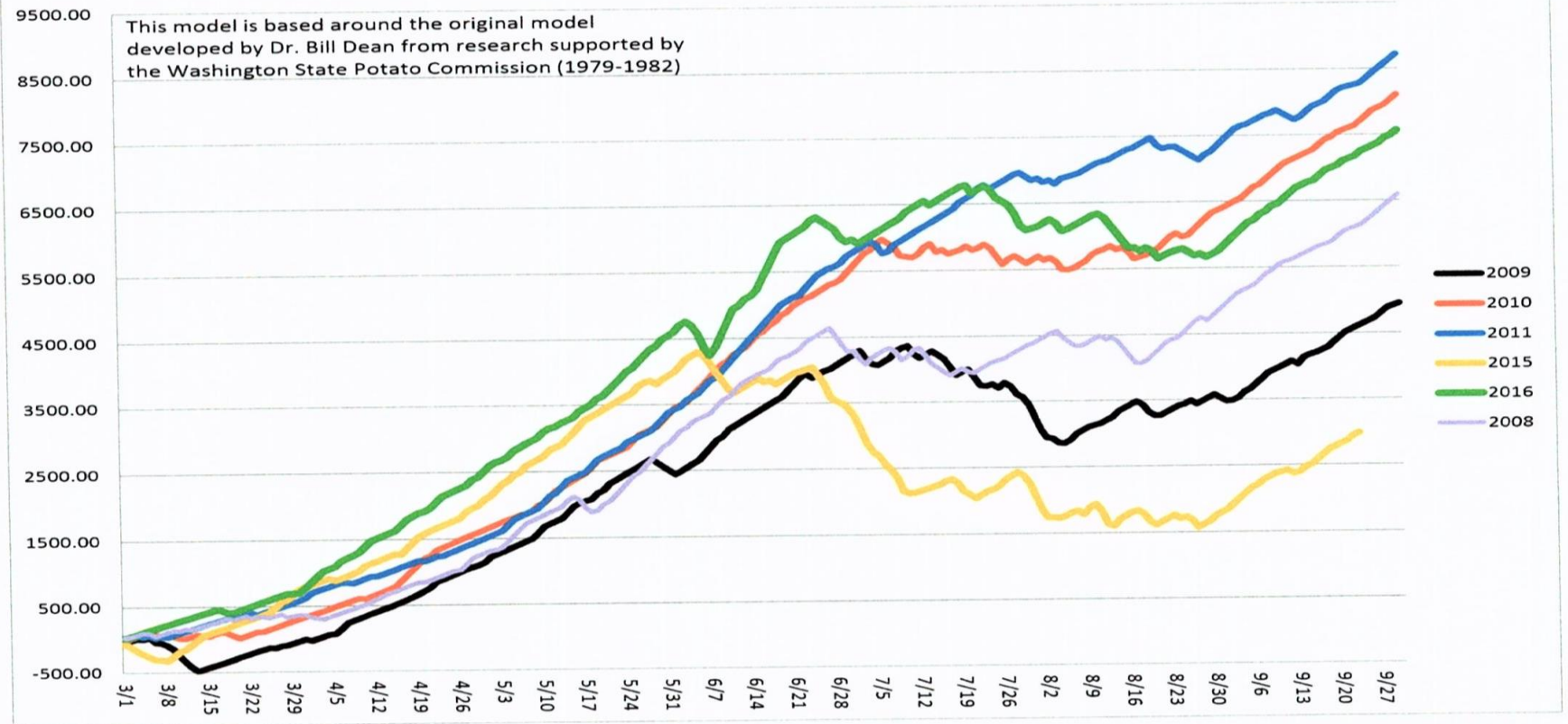
Farming and short-term weather.

- I believe that what we should focus on are the changes in temperatures over a much shorter time period. Not thousands of years, but over days and weeks.
- That time period is the coming onion growing season and how we might react to short-term temperatures variations.
- What can we do right regarding weather?

How can we respond to weather?

- My career has been focused on growing potatoes (>12,000 acres) and onions (>5000 acres) as well as smaller acres of asparagus, peppers, carrots and squash during the past 45 years.
- I have produced these crops using both conventional and organic systems.
- As a research scientist, I have also dedicated about half of my career to understanding how crops respond to various environmental stimuli (weather) and to grower inputs.
- The following example is from my research on potatoes.

Potato Growing Season Quality GVF Pasco



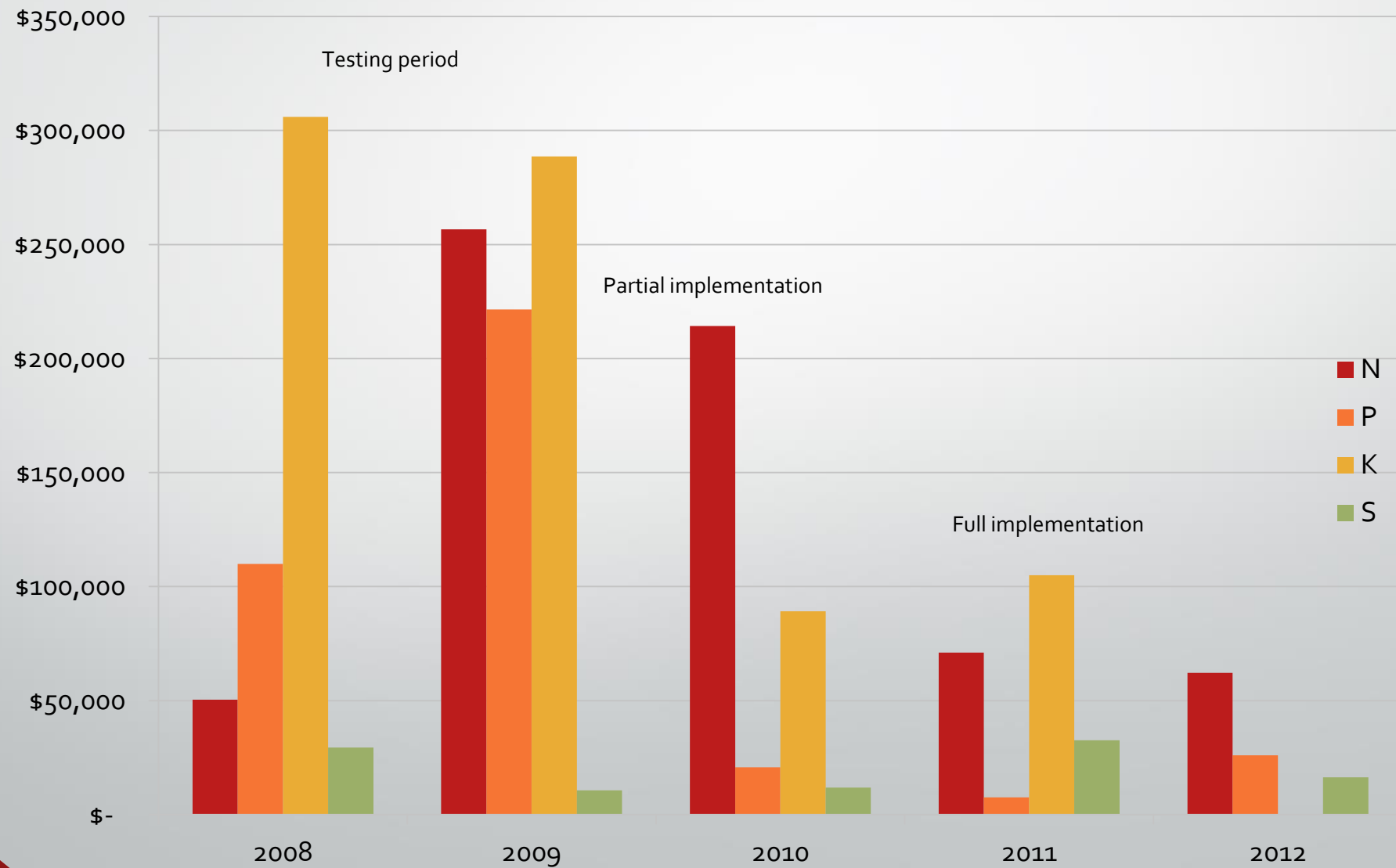
Growing season date

What do we do about the Weather?

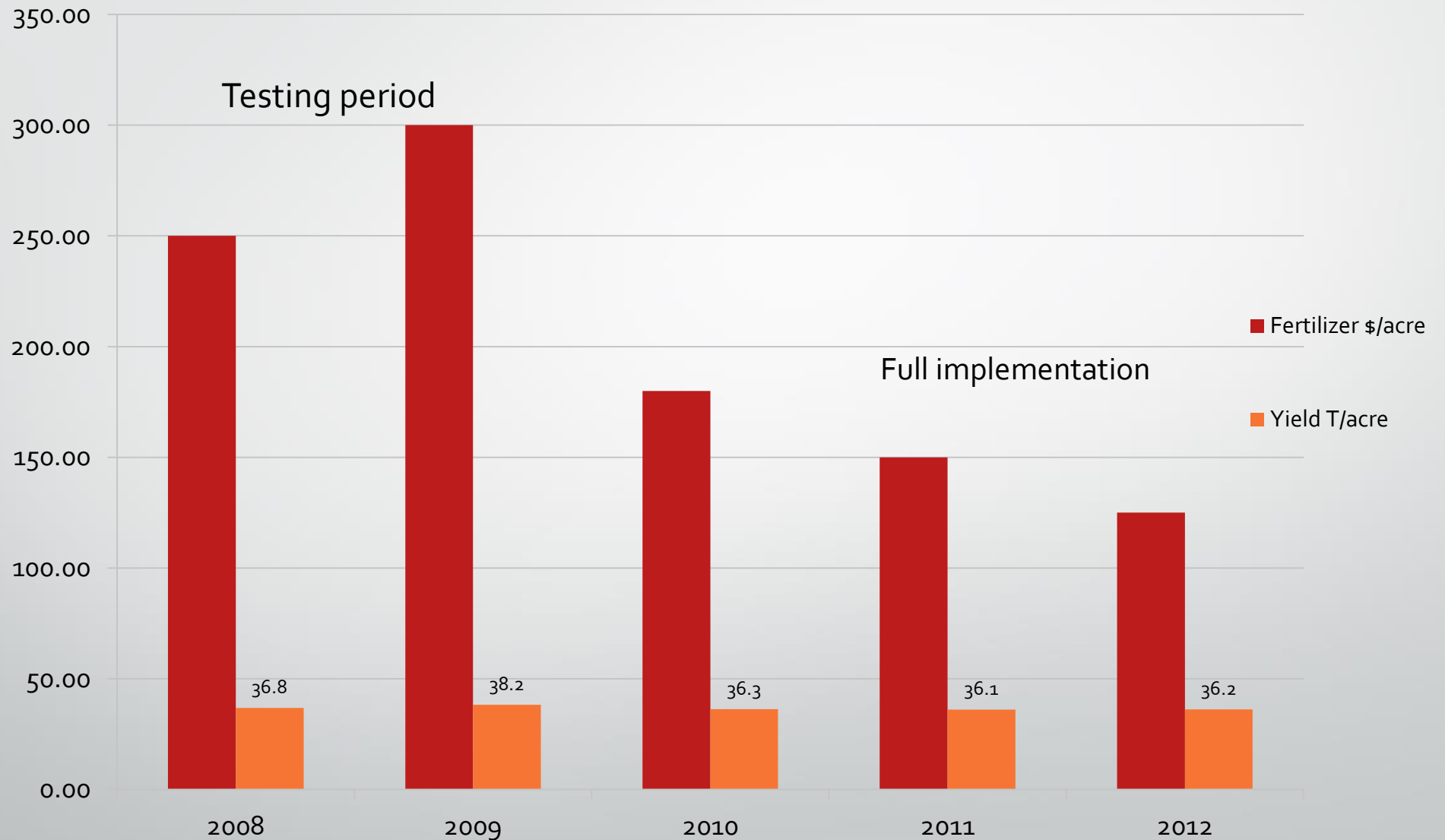
- Variety testing for adaption (200 cvs per year, 3-5 years)
- Fertilizer/nutritional needs (5 years of tests)
- Pest control (ongoing)
- Tillage and erosion control (modified constantly)
- Real-time soil moisture monitoring and irrigation scheduling (2-3 years)
- Shading to prevent greening or sunburn (3 years of tests)



Appropriate resource utilization (sustainability) Timing of nutrients to reduce stress?



Reduce Costs only if Revenue Makes Sense!



Water; timing and amount

- Avoid crop stress (weather)
- Approximate ET (weather)
- Prevent leaching (water holding capacity and water application rate) for environmentally sound programs



Sustainability is a system

- Economic Viability
 - Marketable product
 - Right customers
 - Economically competitive
- Socially accepted practices
 - Good Agricultural Practices (GAP or GGAP)
 - Food Safety (FSMA, GFSI)
 - Employee care (Worker Protection)
- Environmentally sound resource utilization
 - Protect surface and ground water





What we do at RPF

- Onion growing, packing and processing company (The product)
 - Approximately 5000 acres (2000 ha)
 - 175,000MT (competitive pricing)
 - 60% red onions 40% yellow onions (customer demand)
- Over-winter planting in the fall (August/Sept)
- Spring seeded and transplants (March/April)
- Harvest from June 15 through October 10
- Storage from October through June (availability)

Chose the right certifications for promotion of your product.

- Food safety (Global GAP)
 - Clean operation
 - clean water (low /zero bacteria counts,
 - heavy metals and other contaminants)
 - Proper resource use
 - Good Management Practices (GMPs)
 - Optimize hygiene



Labeling



- Certification and its meaning
 - Organic : a philosophy of growing practices
 - Pesticide residue content or absence
 - Sustainable Generally agreed upon practices.


- Non GMO (no genetically modified organisms)
Nutrient content (approximate nutrients)
Gluten free (dietary restrictions)
- Using appropriate testing (right thing)
Abiding by the rules
(Integrity)



Summary:

Doing the right thing “with integrity” when no one is watching means you don't have to worry when someone is watching (auditors or customers).

- Climate is not under your control but do right by it.
- You can modify production techniques based on weather
 - Right evaluations, crop scouting, soil sampling
 - Right, timely decisions
- You can develop a sustainable production scheme
 - Just take it one step at a time
- You need to meet consumer requirements even if you don't fully agree
 - The customer is always right!
- Certification is an assurance to customers that you followed the rules
 - You did the right things
- Integrity is your most important key to sustainability



Thank you for the opportunity to speak with you today!

- Dr. Bill B. Dean (Consulting Agronomist, River Point Farms)