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ASI
Thoroughbred Oysters

Overview

The inaugural meeting of the ASI industry reference group was held at the holiday Inn in Melbourne on 20th November 2014.

Participants:
Matt Cunningham (ASI)
Peter Kube (CSIRO)
Gary Zippel (SA grower, ASI)
Jill Coates (SA grower, ASI, SAOGA)
Adam Sandler (Oysters Tas)
Steve Jones (NSW grower)
Scott Parkinson (Shellfish Culture, TORC)
John Stubbs (Shellfish Culture)
Graeme Cameron (Cameron of Tasmania)
Ben Cameron (Cameron of Tasmania, TORC)
Greg Kent (Southern Cross Shellfish)
Ian Duthie (Seaperfect, TORC)
Graham Mair (Seafood CRC)
Xiaoxu Li (PIRSA-SARDI)

Guests:
Matt Briggs, Australian Prawn Farmers Association
Camila Martins, SouthSeas Abalaone

The meeting aimed to meet three primary objectives;

1) To provide the group with a basic understanding of key selective breeding principles for family selection programs with particular reference to the ASI program for Pacific Oysters.
2) To present historical genetic trends for all traits and to forecast what genetic gains may be possible into the future under various scenarios in relation to trait focus.
3) To discuss and refine terms of reference and composition of the ongoing ASI industry reference group

Selective breeding principles

The group was presented with a brief history of the ASI breeding program by Gary Zippel. This was followed by an outline of key operations by Matt Cunningham. Peter Kube then described the key elements of family based selective breeding programs

which included progress achieved in other programs. Presentations from Peter and Matt on data collection and analysis, and how these relate to breeding decisions and implementation rounded out this section.

Genetic Trends and Gains Scenarios

The group was presented with the historical genetic trends for the ASI breeding population. The trends were discussed and explanation was provided. There was a strong feeling amongst the group that SAMS (South Australian Mortality Syndrome) resistance should not be used as a descriptor for survival. It was suggested that oyster "resilience" or "fitness" replace SAMS resistance and that ASI should measure this trait in other areas such as Port Stephens and St Helens. It was suggested that oyster survival was a trait of importance for all states.

The group then explored and discussed predicted gains scenarios with focus on various traits. It was agreed by the group that POMS resistance and oyster "fitness/resilience" should be the focus traits and that if possible at least some positive gains for meat condition should be sought. There was some feeling in the group that oyster condition was a trait that could be managed with husbandry techniques and as such should not have a high focus in the breeding program. The example of Sydney Rock Oyster disease resistant lines and their difficulty to condition was raised as a reason to keep at least a moderate focus for meat condition. The aim for the traits of growth rate and shape should be to maintain the status quo. Peter Kube committed to providing the predicted gain scenario based on the above. See below.

ASI genetic selection scenarios

Prepared by Peter Kube (CSIRO) and Matt Cunningham (ASI) – November 2014
Predicted gains, expressed as percentage gain per year, are shown in the table below. Each selection strategy is a prediction based on placing the emphasis on different selection traits. This ranges from selecting for one trait only, to multiple trait selection. For single trait selection (such as selection for POMS resistance), the changes in other traits occur due to a correlated response – these changes are an unintended consequence from selection.
Note that the percentage gains are expressed in different ways:

- For survival traits (POMS and SAMS) percentage gain is the increase in survival. That is, if the average survival is 40%, then a 10% gain changes that average to 50%
- For all other traits (WI, DI, WT, CON) percentage gain is a percentage improvement. That is, if the average weight is 50 g then a 10% gain changes that weight to 55 g.

Gains in condition assume measurements based on the use of existing methods. However, research just completed (the CRC condition project 2009/743) has indicated the potential to improve genetic gains with different approaches. These will be adopted and are expected to double the rate of genetic gain.

Estimated genetic gains (% gain per year) for different selection scenarios

SELECTION STRATEGY	POMS	SAMS	WI	DI	WT	CON
1) POMS only	14%	2%	0%	1%	1%	-1%
2) SAMS only	2%	6%	0%	0%	1%	-1%
3) POMS & SAMS only	8%	5%	0%	1%	1%	-1%
4) POMS/SAMS/COND	4%	3%	-1%	0%	-1%	2%
5) POMS/SAMS/maintain other traits	5%	5%	0%	0%	2%	0%
6) COND only	-2%	-2%	-1%	-1%	-1%	3%
7) ALL traits	5%	3%	1%	2%	0%	1%

- *Please note that the gains scenarios are for the whole breeding population and that specific choices by commercial hatcheries will see higher gains for commercial crosses.*
- *This year's breeding plan was closest to strategy 3 and the suggested approach for next year was scenario 4. There will be opportunity for the group to revisit this prior to next season.*

TORS and group composition

A working paper with some additional comments by Graham Mair was tabled and was the basis for the discussion.

Comments were made in relation to the size of the group and the associated costs. It was agreed that the major consideration for the makeup of the group is balancing adequate representation of stakeholders with the travel and venue costs that ASI incurs. Travel costs are difficult to calculate based on this meeting as short notice was given which meant more expensive travel. For the purpose of this exercise costs were estimated at $400-600 per person and $1200 for venue hire.

As previously discussed cost is a major consideration. There has been arguments made that hatcheries are not contributing financially to the levy and as such they should pay their own way. An alternative argument is that the hatcheries are critically important part of this group and any disincentive for them to attend should be avoided. Again it should be stressed that we have no intention of capping attendance, just the cost. Additional grower or hatchery representation is welcomed but ASI is not in a position to meet these costs. See appendix 1 for cost calculations.

Purpose

The group was generally happy with the TOR's as described in the annotated working paper. It was strongly recommended that benchmarking the progress of ASI family lines should be an area of focus for the reference group.

Reporting

A report should be generated from each meeting with recommendations for ASI Board consideration. The report will be appended with all slides and participant comments. An abbreviated version highlighting key outcomes will then be disseminated to industry.

Meeting frequency/timing

There were suggestions that the group should meet twice annually but due to cost implications this will not be possible. It was recommendation is that the group should meet face to face once annually in Melbourne and hold one meeting by teleconference and out of session issues can be dealt with as required by email. The possibility of holding opportunistic meetings around well attended oyster seminars/conferences will always be explored.