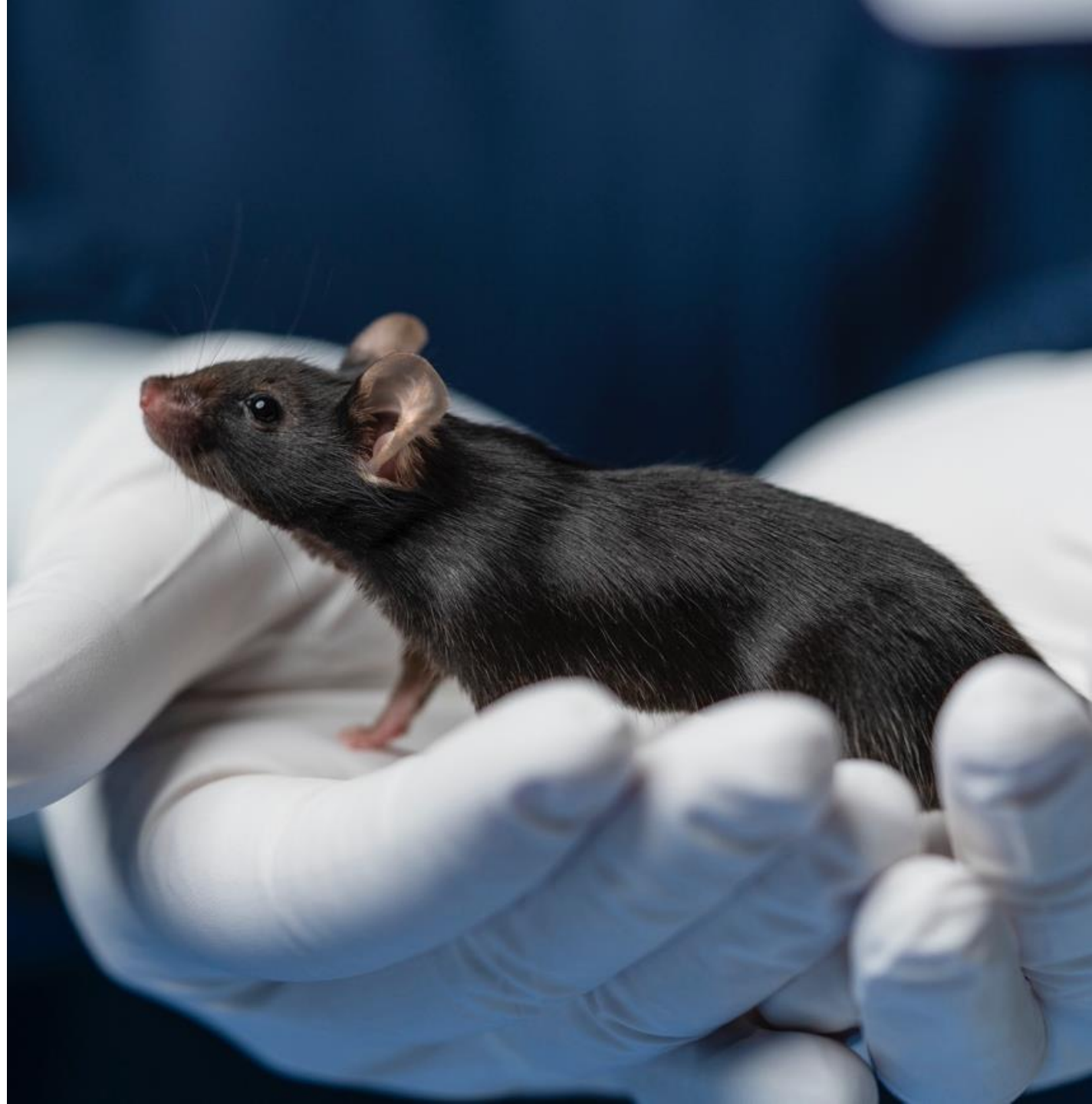


Optimized Colony Management Solutions with Respect to the 3Rs Principle

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Agenda

- Optimized Colony Management
 - The 3Rs Principle in Colony Management
 - The importance of proper upfront planning
 - Cryopreservation as a tool to reduce animal wastage
 - Taconic's AWARE™ Program
 - Increased awareness on animal welfare and the 3Rs
 - How to choose the optimal breeding strategy
 - Questions

The 3Rs Principle in Colony Management



The 3Rs:

- Replacement
- Reduction
- Refinement



Animal
Welfare

The importance of proper upfront planning

Well-defined cohort goals are crucial for designing optimized breeding plans

- Questions to be asked:
 - Can you use study animals of both sexes?
 - Which age-range should the study animals have?
 - Do you need wildtype littermate controls?
 - How frequently do you need cohorts?



**Cohort goal:
40 study
animals**

Breeding Strategies

Definition of terms



Timed-Pregnant Setup:

Breeding time: ~24-72 hours.

Goal: Produce pups at specific embryonic/postnatal age

Peak Breeding:

Breeding time: 1-3 weeks.

Goal: Produce 1 drop of litters with limited age-range.

Synchronous Breeding:

Breeding time: 3-9 weeks.

Goal: Produce 1-3 drops of litters.

Continuous Breeding:

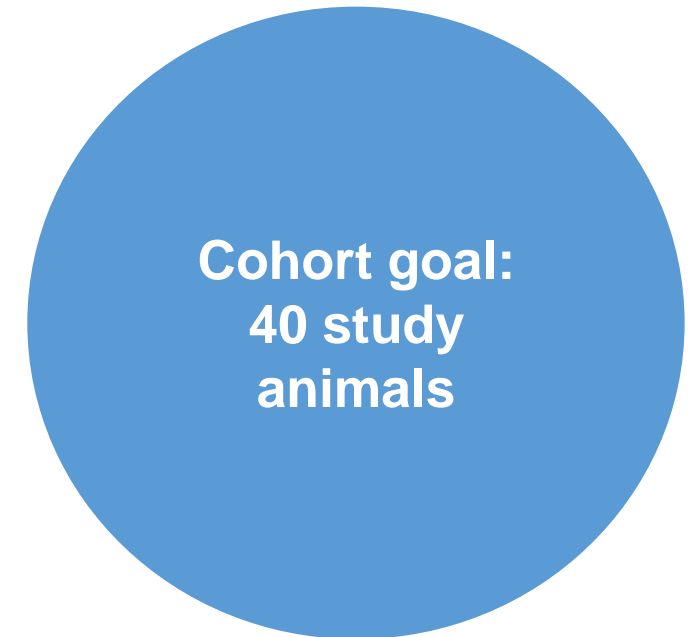
Breeding time: Unlimited

Goal: Continuous production of offspring.

The importance of proper upfront planning

Which age-range should the study animals have?

Age Range	1 day	1 week	3 weeks	6 weeks
Breeding Strategy	Timed-pregnant (TP) setup	1-week peak breeding	3-week peak breeding	Synchronous breeding
# of Breeders	60 females + 60 males	16 females + 8 males	12 females + 6 males	6 females + 3 males
# of Pups Produced	9 TP females ~45 pups	48	48	45
Total # of Mice	165	72	66	54
# of Pups Utilized	40	40	40	40

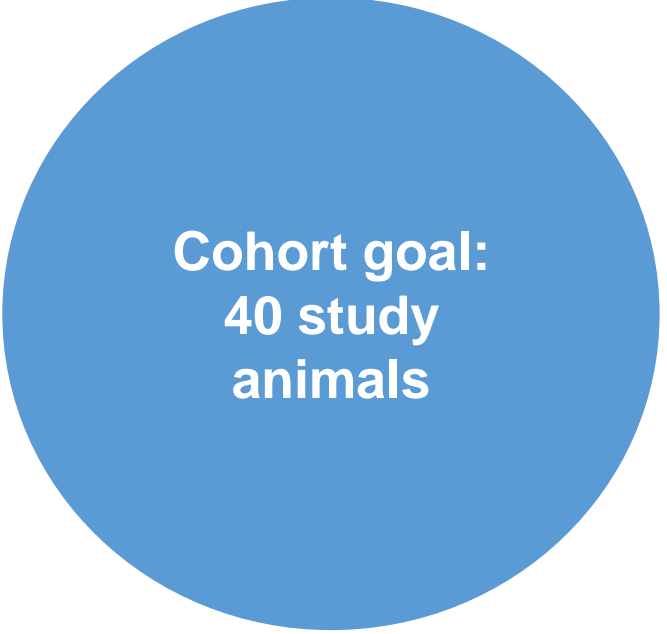


**Cohort goal:
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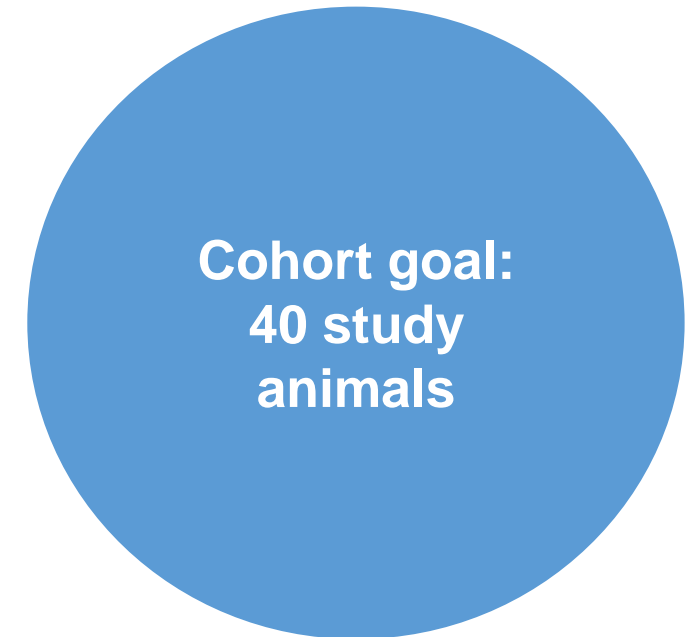


**Cohort goal:
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The importance of proper upfront planning

Do you need wildtype littermate controls?

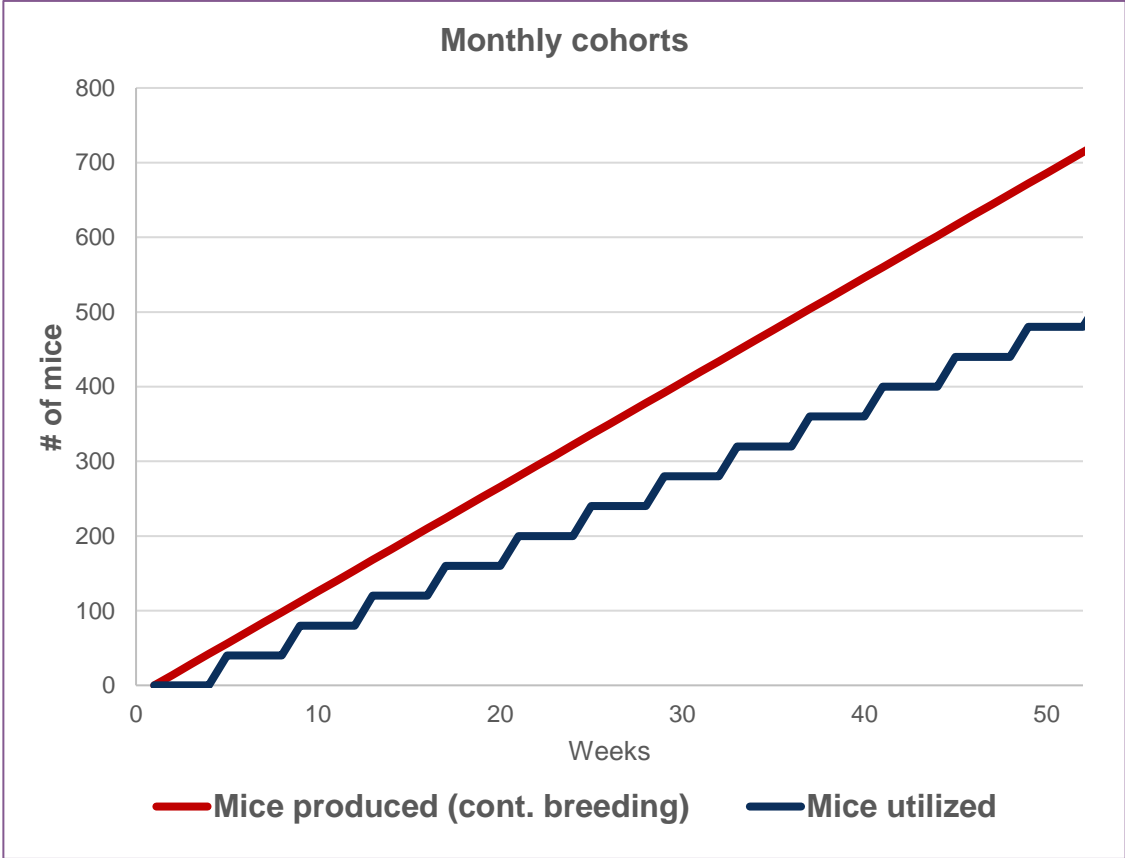
Genotypes	40 HOM	40 HOM+40 WT
Breeding Format	HOM x HOM	HET x HET
# of Breeders	12 females + 6 males	48 females + 24 males
# of Pups Produced	48 HOM	48 HOM 96 HET 48 WT } 192
Total # of Mice	66	264
# of Pups Utilized	40	80



**Cohort goal:
40 study
animals**

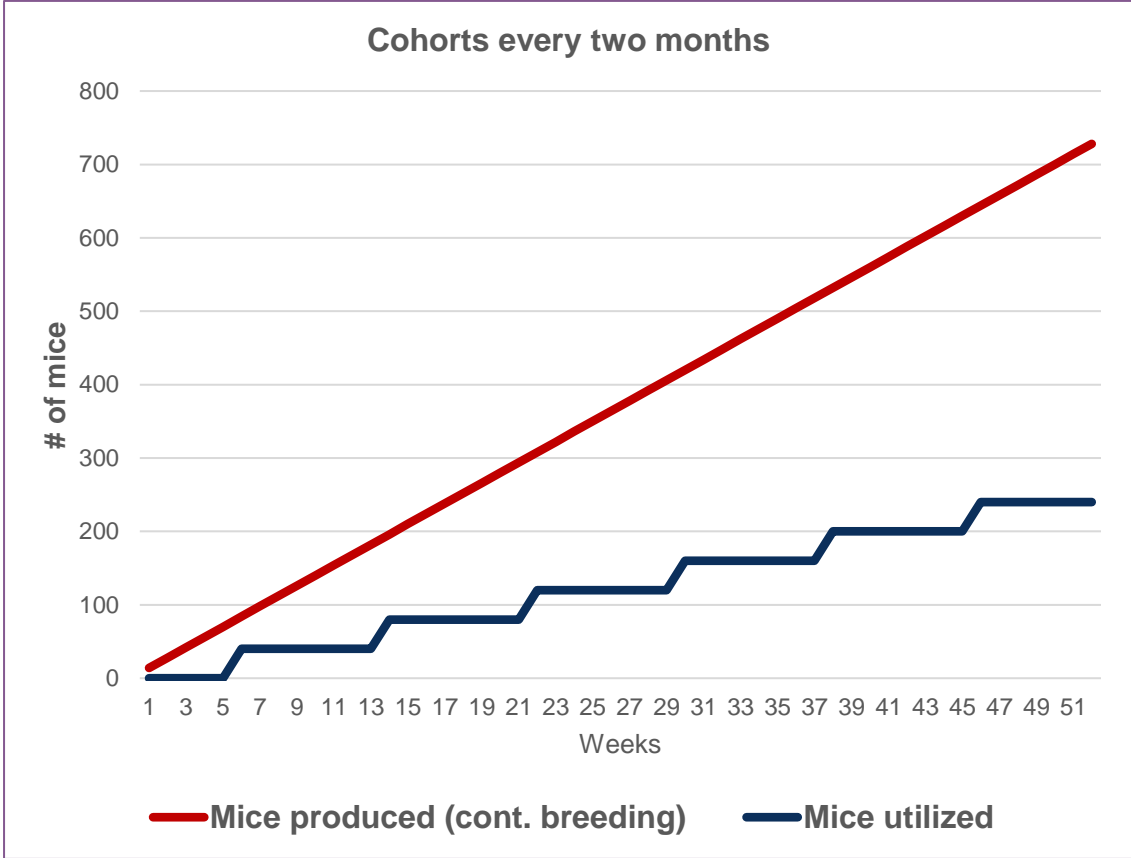
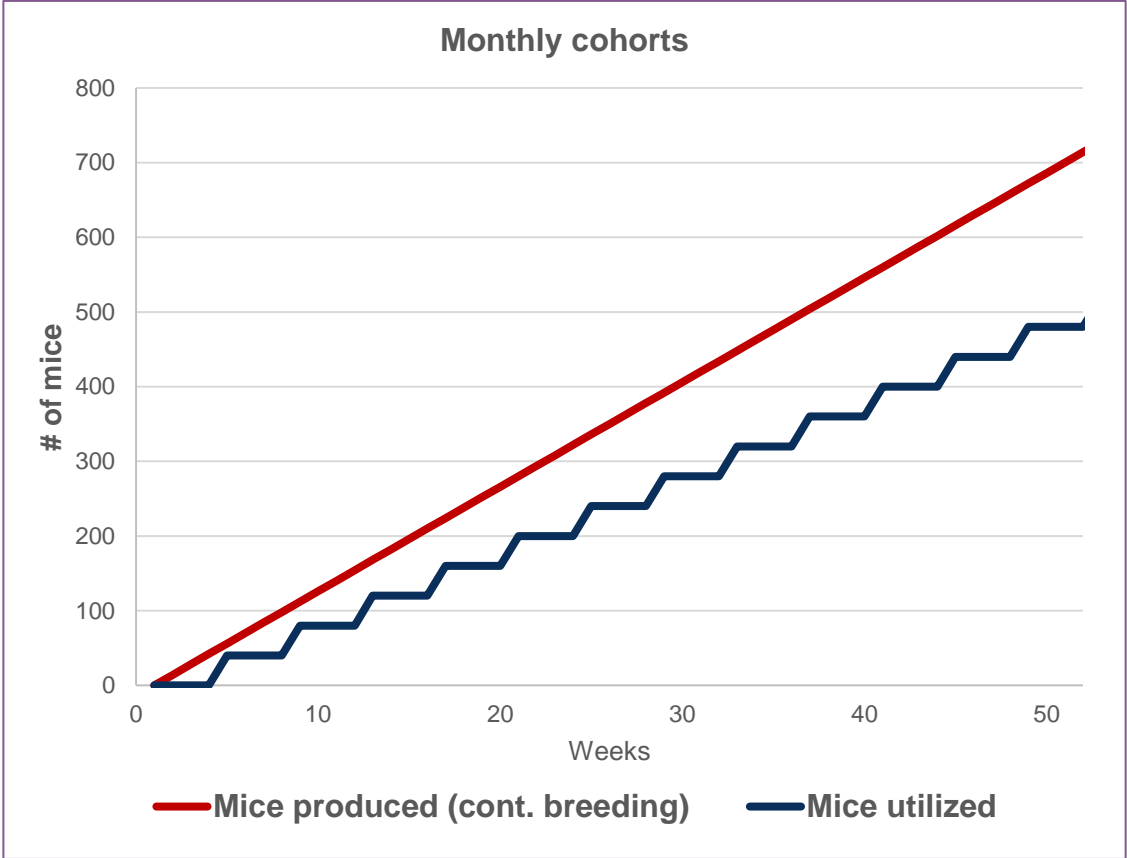
The importance of proper upfront planning

How frequently do you need cohorts?



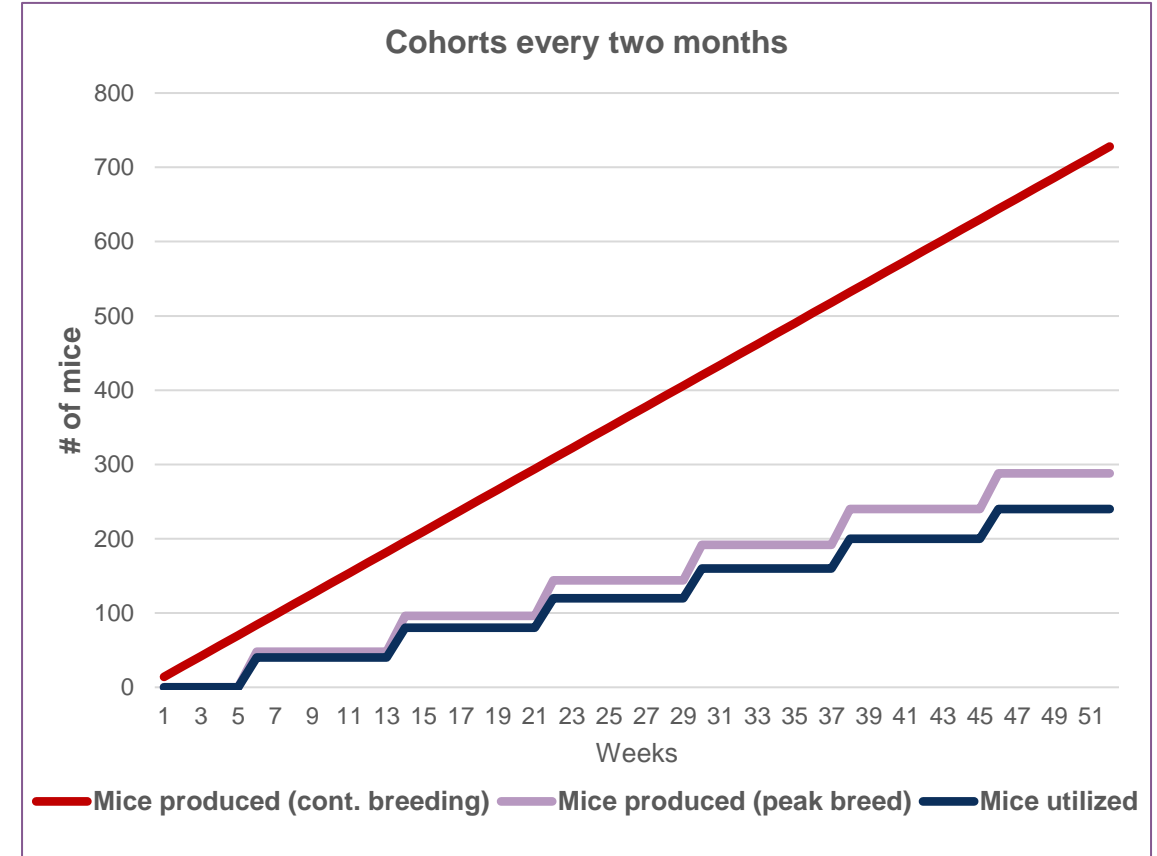
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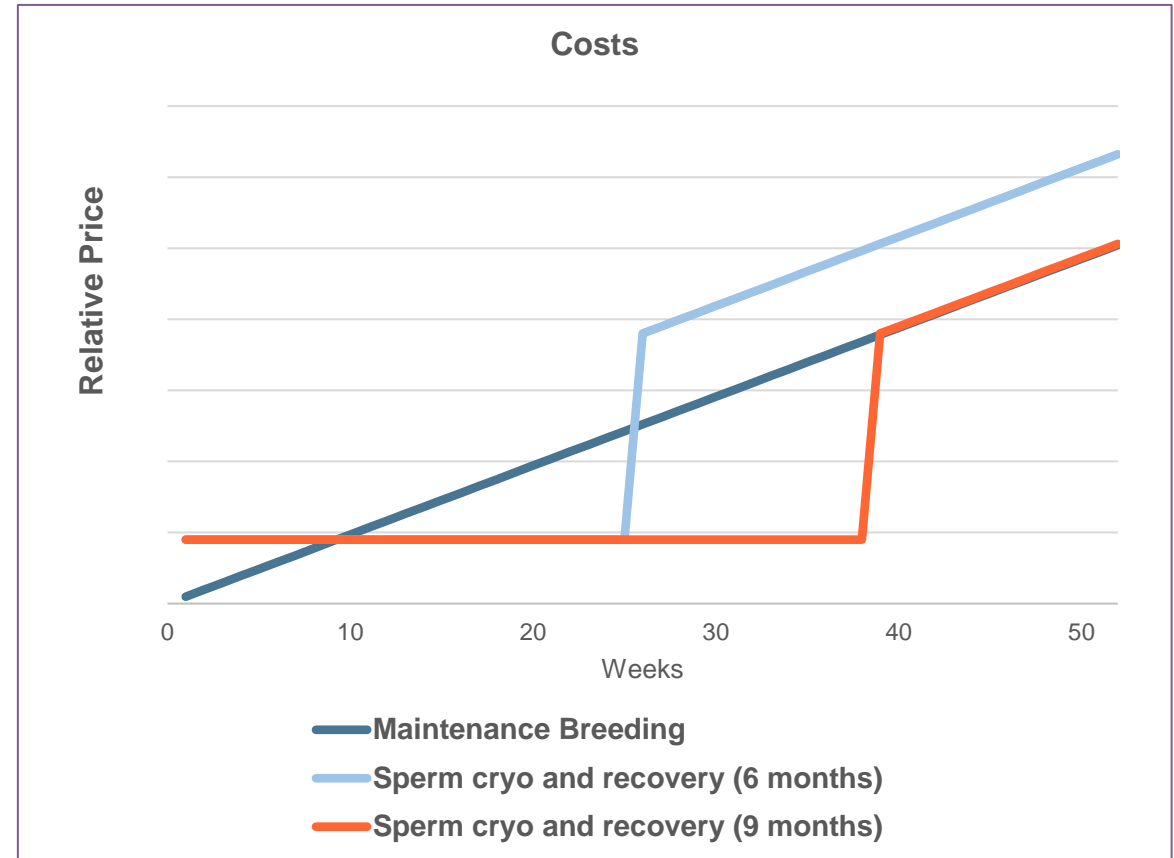
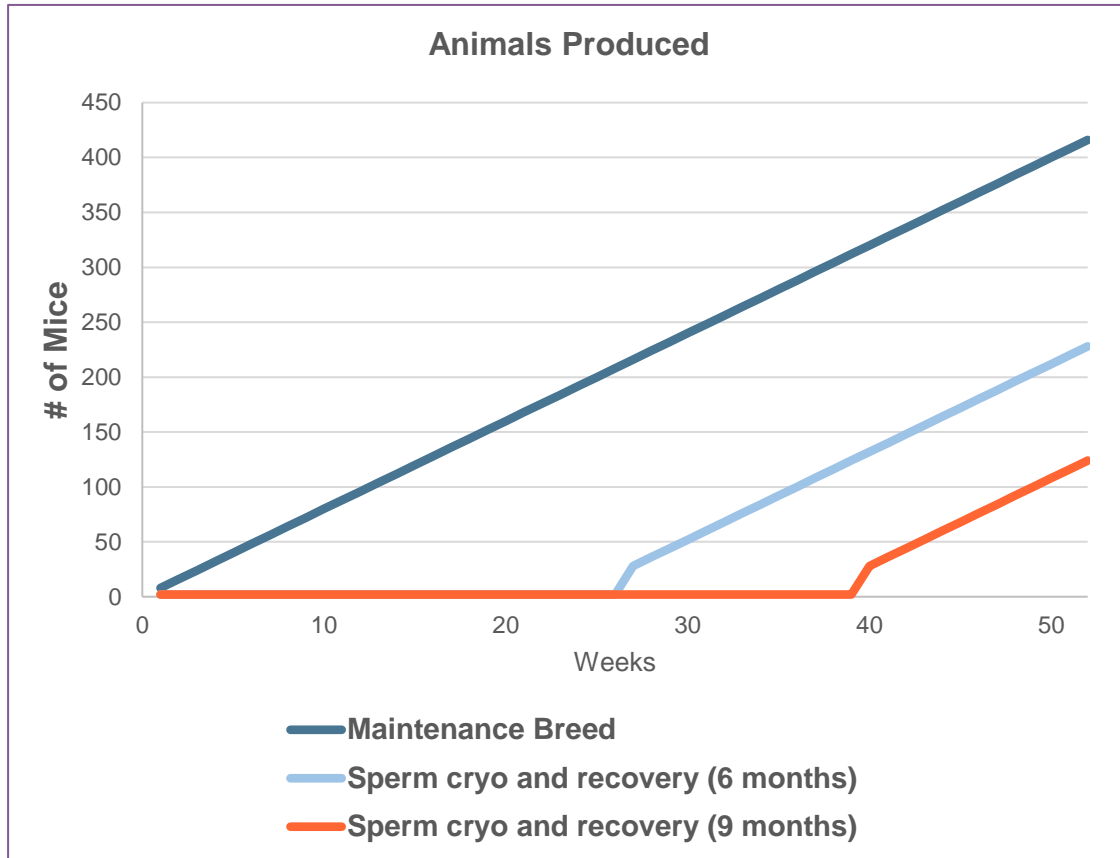


The importance of proper upfront planning

How frequently do you need cohorts?



Cryopreservation as a tool to reduce animal wastage



Increased Awareness on Animal Welfare and the 3Rs

Taconic's AWARE™ Program Score and Explanation Guide



	Animal Utilization	Pain and Distress	Genetic Integrity	Adverse Phenotype
1	Excellent (>90%)	Breeding/Holding	No Risk	Not Harmful
2	Very Good (75-90%)	Momentary	Low Risk	Unknown
3	Good (50-75%)	Relieved	Medium Risk	Mild
4	Poor (25-50%)	Unrelieved	High Risk	Moderate
5	Very Poor (<25%)	N/A	Extreme Risk	Severe

The 3Rs Principle in Colony Management

How to choose the optimal breeding strategy

Define	Carefully define your cohort goals
Optimize	Consider cohort modifications that will reduce the required breeding efforts, e.g. using both sexes or increasing the age-range of your study animals
Plan	Be realistic about the required frequency of cohorts and adapt your breeding strategy accordingly
Monitor	Monitor your colonies closely and adapt your breeding strategy if the colony is overproducing
Cryopreserve	Cryopreserve lines that will not be utilized for at least 6-9 months



Thank You!