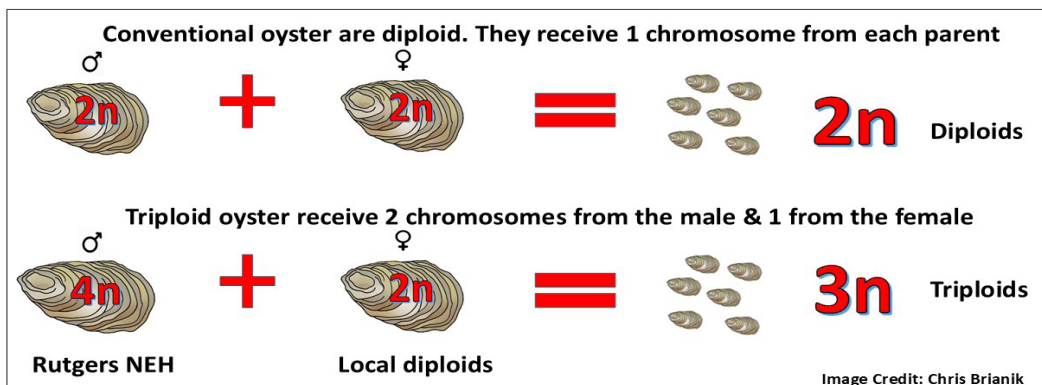


Triploid Oyster FAQs

Below is a summary of information discussed during the webinar on *“The Potential Role of Triploid Oyster Technology to Mitigate Disease & Increase Yield”* provided by Dr. Bassem Allam and Dr. Chris Brianik from Stony Brook University’s Marine Animal Disease Lab

1. What are triploid oysters?

They are regular oysters bred to have 3 sets of chromosomes instead of 2 (diploid oyster).



2. How are triploid oysters produced?

Male oysters with 4 sets of chromosomes (tetraploid) are spawned with females that have 2 sets of chromosomes resulting in offspring with 3 chromosomes (2 from the male and 1 from the female).

3. How would I produce my own triploid seed?

You need to acquire tetraploid male broodstock. Currently in the Northeast, these are supplied by Rutgers’ University at the Haskin Shellfish Research Lab. Reach out to the NYSG Aquaculture Specialist who can connect you with them.

4. What is the benefit or purpose of triploid oyster?

- They’re functionally sterile so they won’t reproduce and therefore put more energy into growing rather than putting energy into reproducing like diploids.
- The meat quality stays consistent throughout the year since they will not produce gametes to spawn.
- Triploids would not be used for restoration efforts.
- They may grow about 30% faster than the diploids.



Oyster meat comparison from spawning season. Diploids produce gametes but triploids do not. (Photo Credit: Ximing Guo)



Comparison of 6-month old diploid and triploid oysters. (Photo Credit: Ximing Guo)

5. Are triploids raised anywhere else?

Yes, this is very common in France (~90%) and also in Virginia, the Gulf, and West Coast. These are produced for consumption purposes only and not for restoration purposes.

6. Are triploid oysters naturally occurring or are they GMOs?

They are not GMOs. Both triploids and tetraploids occur in nature, just uncommonly. Selective breeding is different than a true GMO. Many agriculture crops such as wheat, strawberry, watermelons, and bananas are polyploids (i.e., having more than 2 sets of chromosomes).

7. Does a triploid oyster taste different?

No, they do not taste different from a traditional oyster. The only difference is that the meat would be larger during months when diploids would be getting ready to reproduce or spawn. Most likely if you have had oysters from Virginia, the Gulf, or West Coast, you have already had them before.

8. Do triploid oysters survive as well as diploid ones?

- During the hatchery phase (< 2mm), they were more susceptible to mortality than diploids.
- A hatchery producing triploids may experience higher mortalities early on but this decreases with size.
- A farmer would be purchasing animals that made it through this period and would not be impacted.
- During the grow-out phase, they had advanced growth over the diploids.

9. Are triploid oysters more resistant to disease?

If derived from a disease resistant strain, they would be just as resistant as their diploid counterparts. Since they grow faster and reach market size quicker, they will also have less exposure to disease.

10. Why does some triploid seed grow poorly and appear frail?

- **Source of seed:** There is minimal production of triploid seed in NY (often none) so it's possible the seed acquired from another state was not well adapted to NY's environmental stressors. This can fluctuate from year to year as well. Getting seed from as close to NY as possible will reduce the chances of this.
- **Seed Age:** Buying very small seed (1-2mm), while cheaper, increases the chances of getting animals that are still susceptible to the mortalities experienced during the hatchery/nursery phase. Although more costly, consider buying larger sized seed to reduce the chances of this.
- **Genetics:** Whether triploid or diploid, sometimes there are poor genetics and offspring just do not do well. The diploid females selected for spawning may not be the best suited for producing triploids.

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This information was obtained during the recorded webinar in December of 2024 and could change as new research is conducted over time.

Find additional resources at: www.nyseagrant.org/aquaculture

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