



GreenWave Spool Quality Rating System

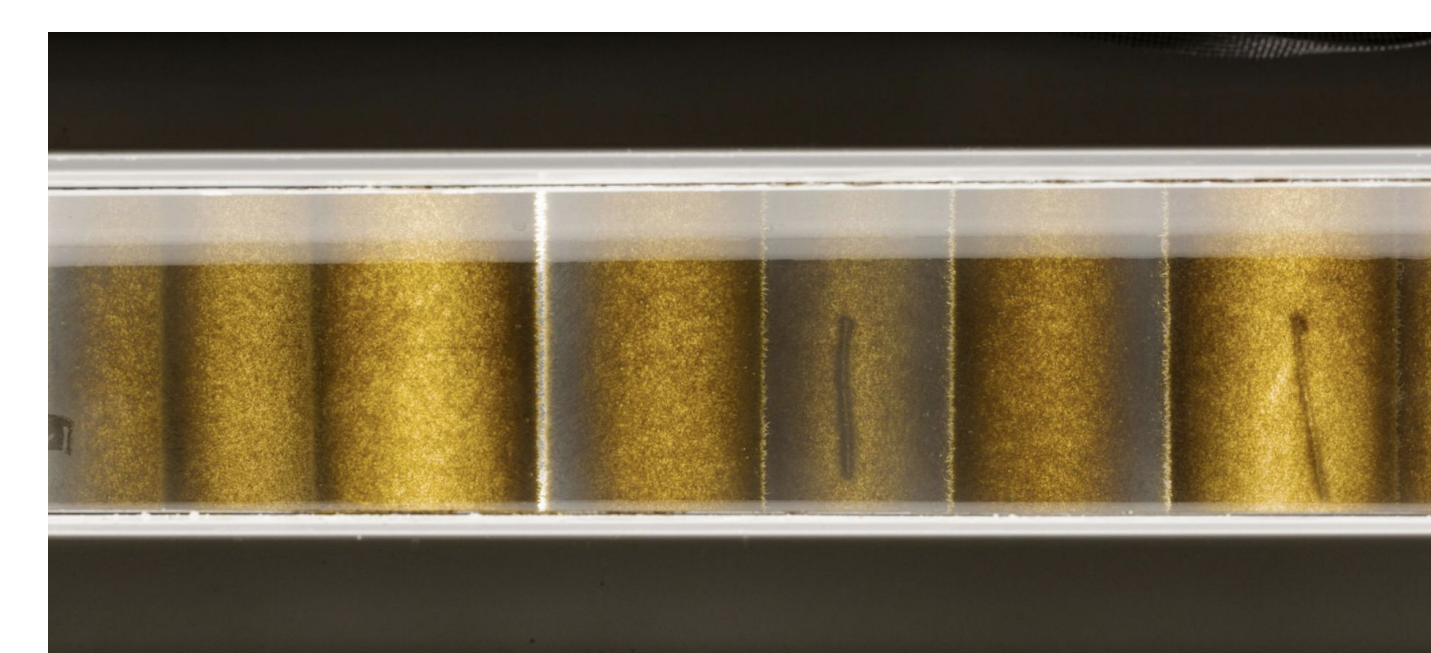


Photo Credit: Allegra Anderson



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At GreenWave, we use a simple equation to grade our spools at the end of each season.

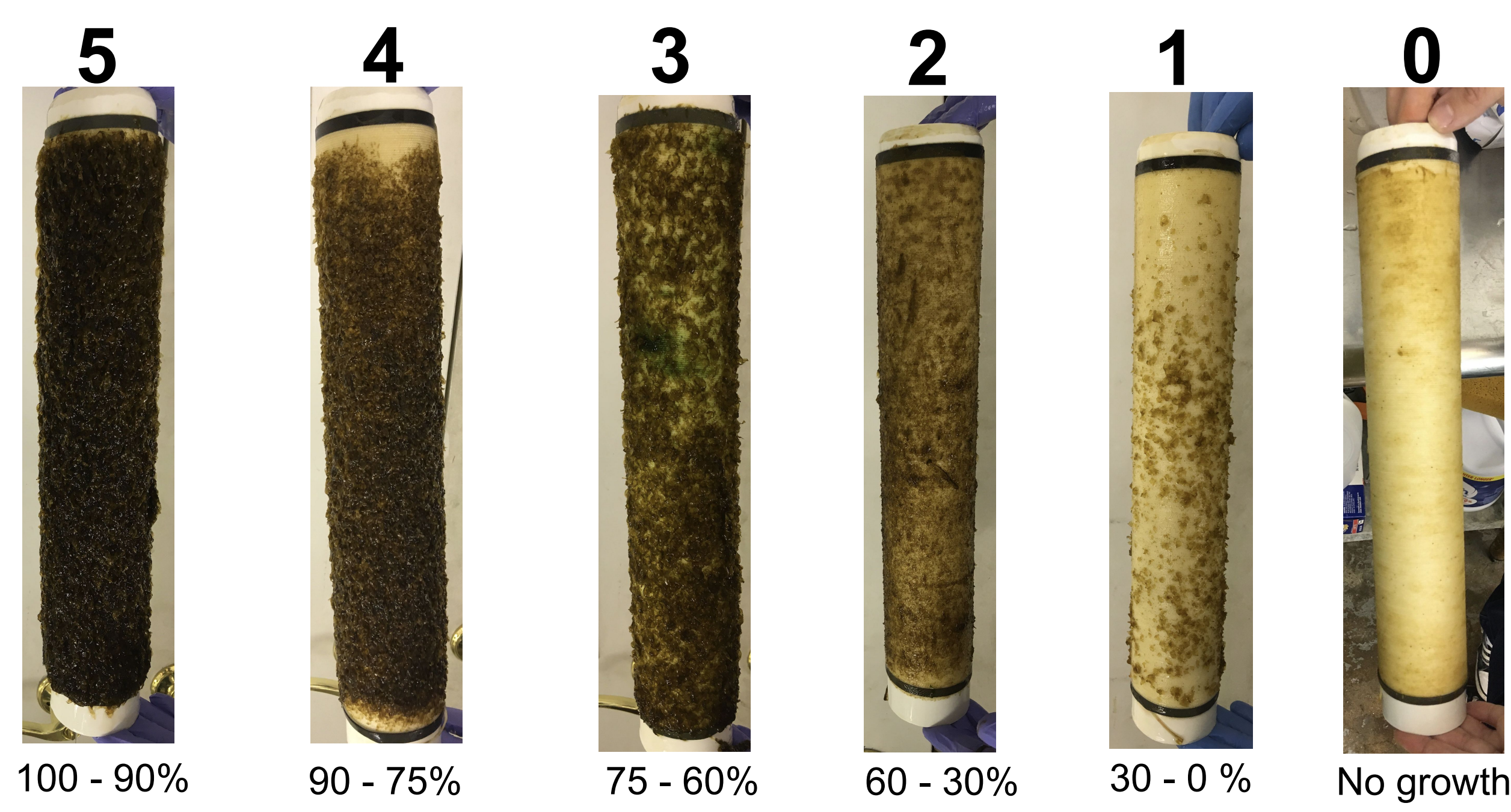
This equation considers four important factors, outlined below, and helps us meet our goal of providing high quality and consistent spools to our farmers.

$$\begin{matrix} \% \\ \text{Coverage} \end{matrix} + \begin{matrix} \text{Blade} \\ \text{Coloration} \end{matrix} + \begin{matrix} \text{Growth} \\ \text{Consistency} \end{matrix} - \begin{matrix} \text{Unwanted} \\ \text{Growth} \end{matrix} = \begin{matrix} \text{Final Spool} \\ \text{Quality} \end{matrix}$$

Percent Blade Coverage

0 - 5 grading scale

A fully covered spool offers the most linear feet of kelp grow out in the field, ultimately improving final yields.

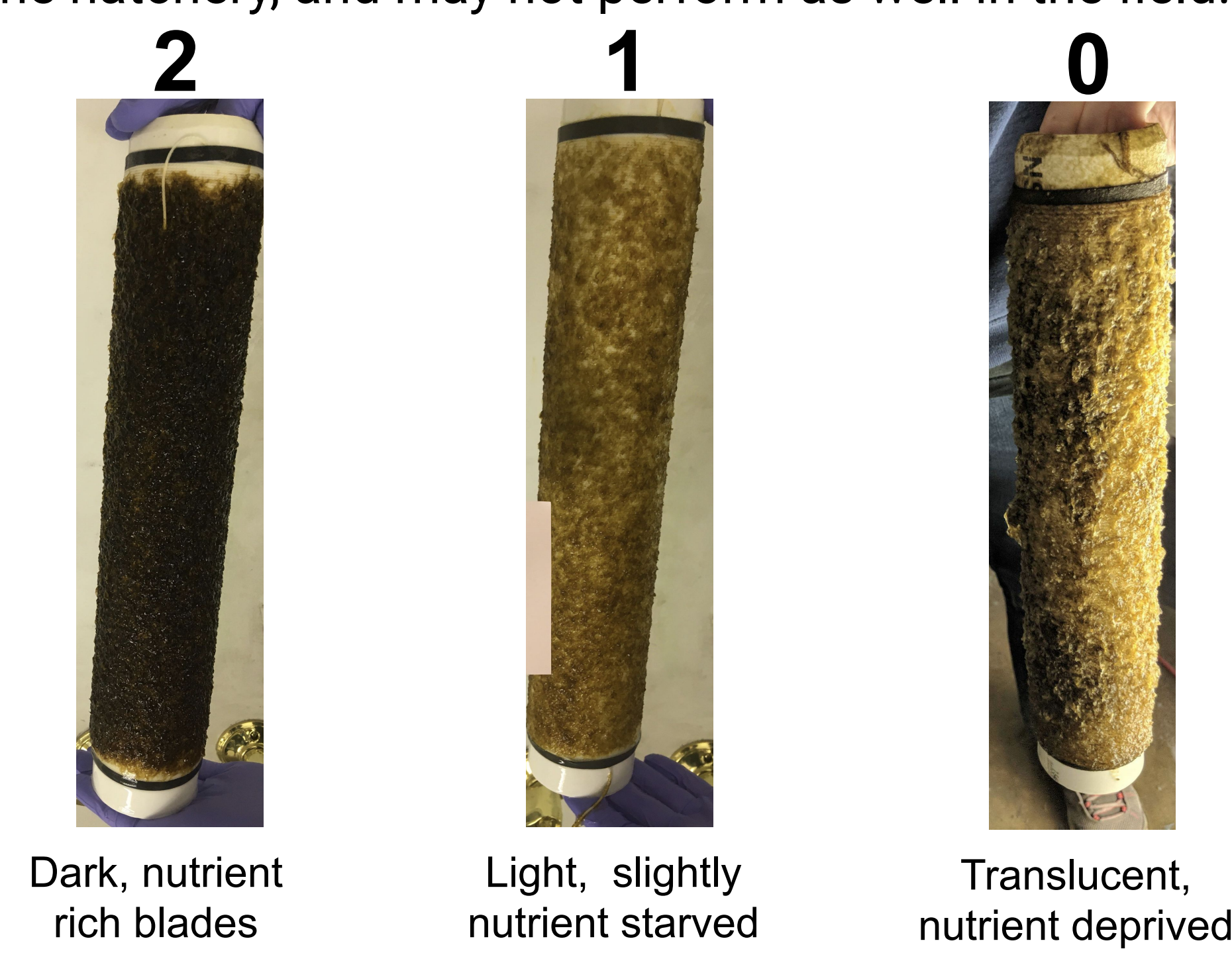


To achieve a high percent coverage we first conservatively count the spores we use to inoculate each spool, and gently promote mixing of the spore solution around each spool for even coverage at the start of the inoculation process.

Blade Coloration

0 - 2 grading scale

A spool with dark blades indicates that it came from a nutrient rich environment, and will have an advantage once it is outplanted. A spool with translucent blades suggest it may have become nutrient starved in the hatchery, and may not perform as well in the field.

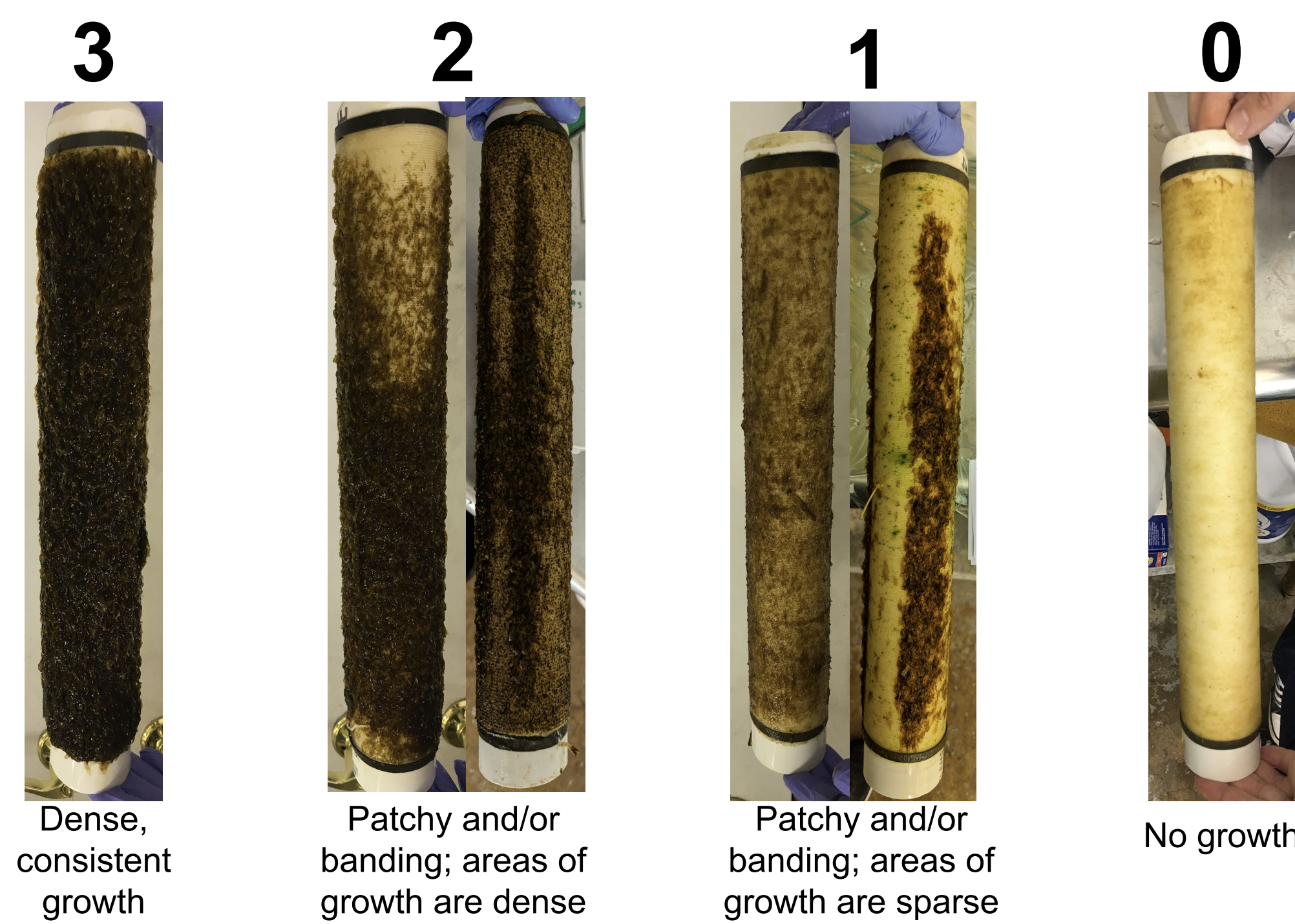


We ensure our spools are well "fed" in the hatchery by adding weekly nutrients to every tank. We also try to outplant by the 6th week mark, because as the blades grow, they quickly take up what is available in the tank to a point where we can no longer keep up with replenishment.

Growth Consistency

0 - 3 grading scale

Similar to percent coverage, a spool with even and consistent growth will offer greater linear footage, which will increase final harvest values

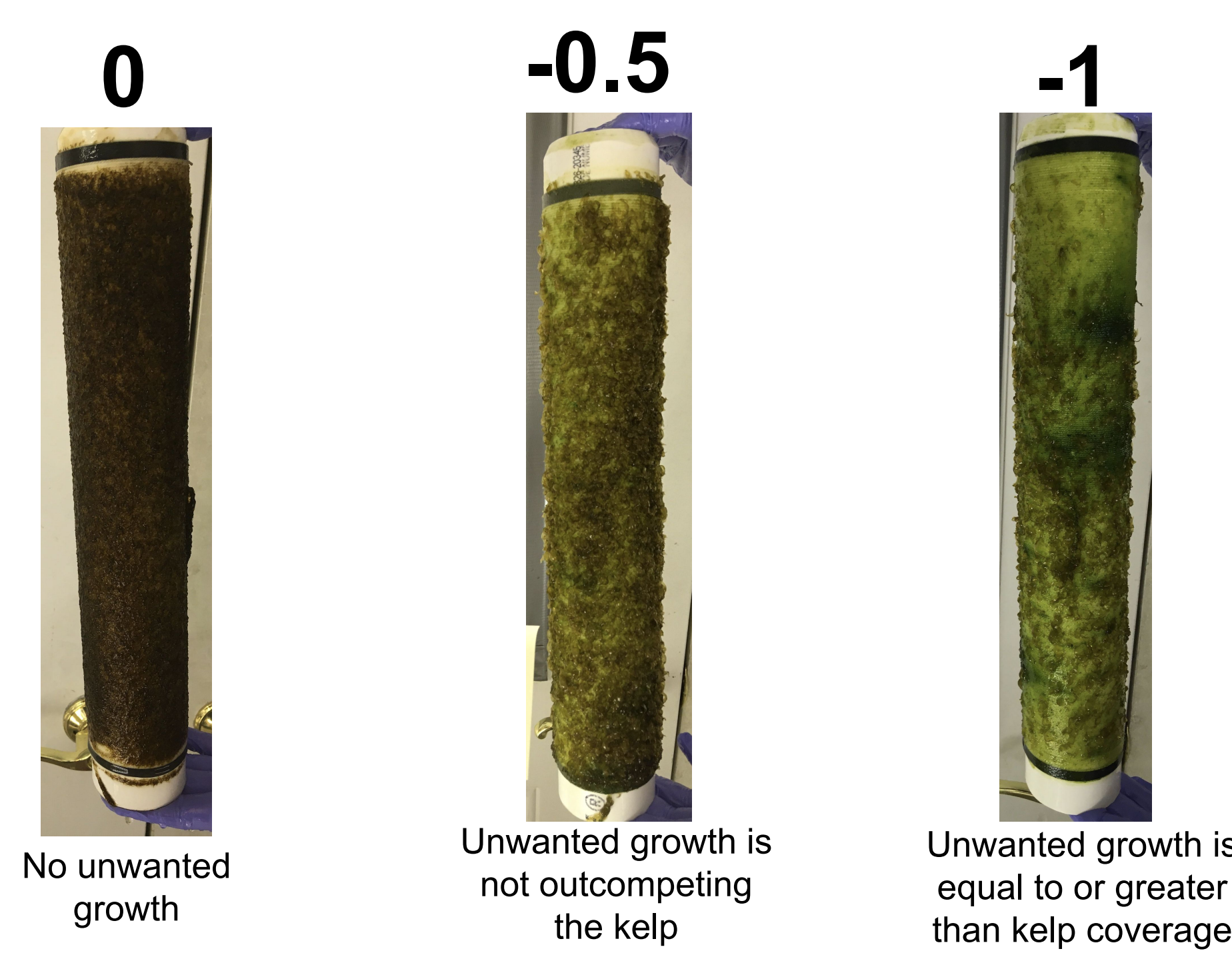


The worst type of growth inconsistency is what we called "banding," which is when full vertical strips of the spools have little to no growth. We have hypothesized this may be caused by increasing the light intensity too soon; to avoid this problem we have slowed our light intensity schedule and also do not give a spool full light before there are visible sporophytes.

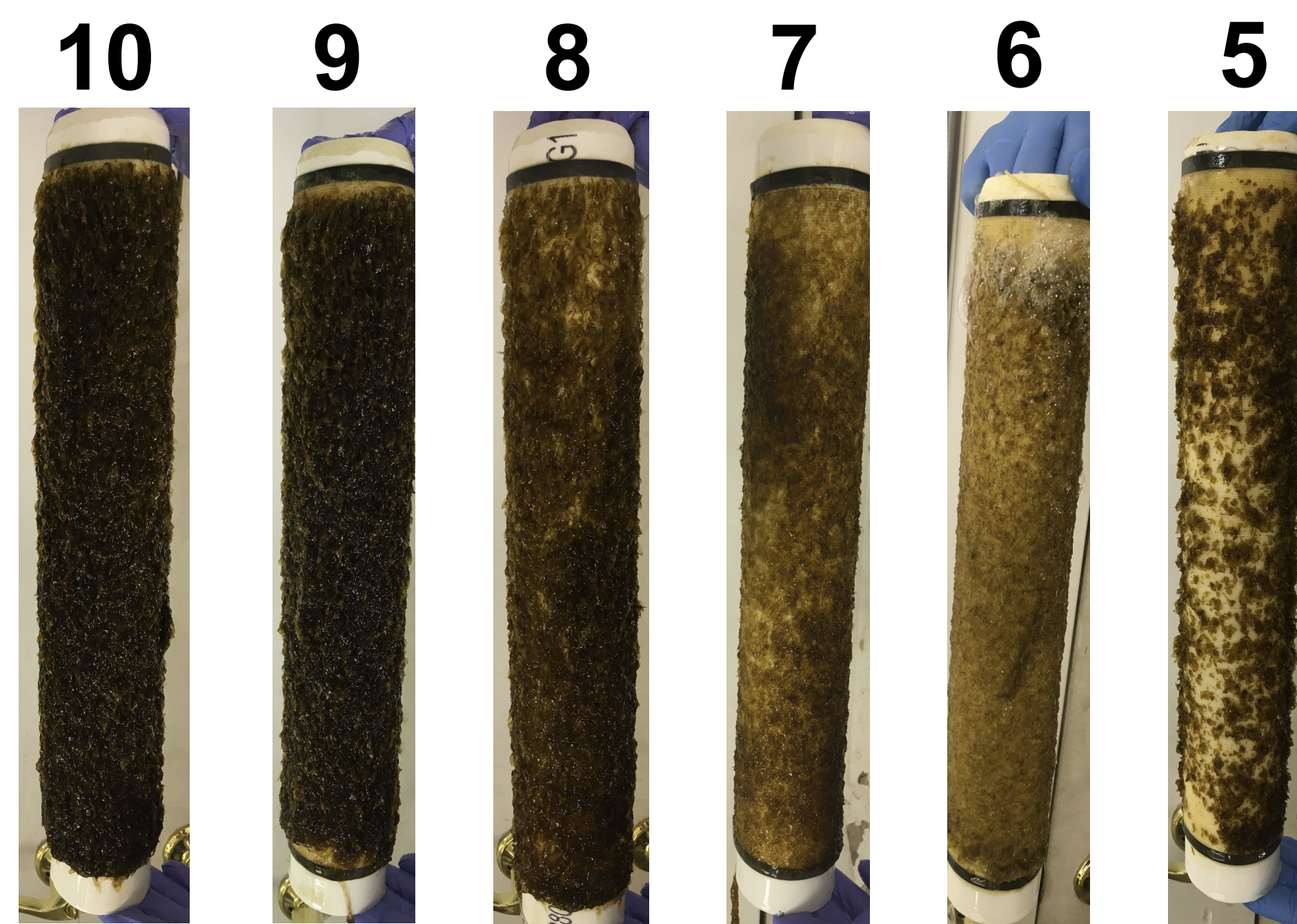
Unwanted Growth

-1 to 0 grading scale

Any introduced contaminants or other algae growth has the potential to outcompete the kelp growing on a spool



We practice strict biosecurity to avoid unwanted growth on our spools.. This starts with thorough cleaning of the blades during processing, and continues throughout the hatchery season with practices such as weekly water changes, meticulous cleaning of hatchery equipment, and banning any farm related gear or items from entering the hatchery.



Final Spool Quality

Our goal is always to provide the highest quality spools to our farmers. While we aim to have a hatchery full of "perfect 10s," there are always some factors outside of our control that may impact spool quality.

We prefer to use a score of 7 as a cut off point for outplanting, but consider spools with scores of 6 & 5 on a case by case basis, by making a best judgment of how they may perform in the field.

Future data collection will help identify what factors are most important for harvest yields, can adjust this equation in future years as needed.

