

Ovaplant



Using Ovaplant to Induce Maturation in Cultured Fish

Features

Ovaplant can advance and synchronize spawning dates in cultured fish. As well, Ovaplant is quick and easy to use. The results are predictable and reliable without affecting fecundity, fertility and survival. In males, milt production is increased for extended times. In females, maturation of ova is complete without adverse effects. Ovaplant can be used in a variety of cultured fish and in many applications: re-start stalled maturation, synchronize spawning times, induce maturation in hard to breed fish and ensure breeding in endangered stocks. Ovaplant has emerged worldwide as a key tool in broodstock management.

Product Description

Ovaplant contains a potent analogue of a naturally-occurring brain peptide. This peptide initiates maturation in all species of fish through the fishes' own internal mechanisms. Ovaplant comes as pellet that is implanted into the fish prior to spawning date. The controlled release of the peptide over time ensures the safe induction of spawning. The peptide vehicle is 100% biodegradable and is made from all natural compounds. Moreover, the ingredients of the implants will not harm the fish or humans.

Method of Action

The active ingredient of Ovaplant is the analogue of salmon GnRH or sGnRH_a. The native peptide is released from brain cells of the hypothalamus that then bind to receptors on pituitary cells. The sGnRH_a in Ovaplant acts in this fashion except that

- It travels to the pituitary from the pellet through the blood,
- It is present in greater than physiological amounts and
- Binds to the pituitary receptors with a greater affinity than native peptide and hence is more potent.

These three factors, external source, greater availability and greater potency, induce and increase a continued liberation of maturational hormones from the pituitary. These pituitary hormones elicit gonad maturation together with the constituent and complementary hormone production from the gonads. The result is the earlier, complete production of viable eggs and milt.

Applications

Ovaplant can be used in a population of fish with a well-defined breeding or spawning period. Ovaplant can advance maturation dates by weeks in most populations with a uniform and short spawning period. In other cases, Ovaplant can move spawning dates forward by appreciable amounts. When used in the normal spawning season, using Ovaplant can compress the spawning season to maximize spawning potential and conserve resources. Ovaplant can also be used in fish that have been photoperiod controlled. There is no substitute for well-described broodstock performance and the best results for using Ovaplant are in stocks with a recorded spawning history.

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Typical Ovaplant Uses

There are four main uses of Ovaplant:

1. To advance spawning date in a population. An advanced spawning date gives producers a greater flexibility in marketing ova and offspring. It also has many beneficial downstream effects that are realized when spawning is confined to a predictable and defined period.
2. To compress the spawning season. Often fish in a population will spawn over a protracted period. Ovaplant can compress and shorten the spawning season that permits optimization of time and resources.
3. To restart stalled maturation. Sometimes handling or other stress causes valuable broodstock to stop maturing after the process has begun. Ovaplant can help to restart maturation in a natural way without effecting gamete viability.
4. To increase milt production. Chronic problems of milt shortages are commonplace in aquaculture. This may disrupt detailed breeding programs. Ovaplant serves to increase milt production and lengthen the time males will produce.

Species List

Ovaplant can be used in all species of fish. The forms of GnRH that naturally occur in the brains of fishes differ throughout the more than 25,000 fish species. However, the salmon form of GnRH is present in most of these fish and thus the sGnRH α in Ovaplant is the peptide of choice. Among the other types of GnRH found in the other fishes, there is such a conservation of form and function that Ovaplant works successfully. For specific application of Ovaplant to your fish, consult Syndel Laboratories.

Critical Requirements

It is primary important that the protocols of Ovaplant be used for successful results. Paramount is defining the intended purpose: advanced maturation, compressed spawning, re-starting maturation or increased milt production. In each of these applications, the timing of Ovaplant use differs. Generally, the closer to normal spawning date that Ovaplant is used, the greater the success.

Another consideration is sample size. Fish spawn in a season that may span weeks or months. By implanting only a few fish from a population, it is equally likely that late and early spawning fish could be chosen. This would give results concomitant with the reproductive state in individual fish: all fish would spawn earlier than normal (e.g. weeks earlier), but it would be impossible to determine which fish were moved forward the most or at all. The solution is to try Ovaplant on a larger sample of fish with a well-defined history of spawning dates.

Packaging and Presentation

Ovaplant comes in a cassette that contains 24 implants. The cassettes fit into an implanting gun that is easy to use and is autoclavable. The removable implanting needles are disposable and can be sterilized. Simply insert the needle, pull the trigger and withdraw the needle. The implants contain enough sGnRH α to accommodate a range of fish weights with a wide range of therapeutic efficacy.