

Spawn Production of Common Carp

Common Carp is a foreign fish and there are several varieties. The variety used in Western Orissa is the fully scaled carp, which suits the tropical climate.

Common Carp lives and feeds near the pond bottom and can be grown with the Indian Major Carps, Catla, Rohu and Mrigal as a 'polyculture' (which means growing many different types of fish together). It can also be grown alone, as a 'monoculture' in rice fields with high dykes that retain water.

Common Carp is also a good fish for seasonal ponds because it grows fast.



Development and maintenance of broodstock

Common Carp grows almost as fast as catla. It reaches 1.0-1.5 kg in one year. It grows slower if too many fish are in the pond or if the wrong quantity of fertilizers and feed are added.

The Common Carp always matures at six months old whatever its size. It can breed two to three times a year: during the monsoons, at the beginning of winter and at the beginning of summer.

Winter breeding is not very common, but the Common Carp breeds plentifully during the monsoons and a little less during February-March.

The broodstock can be raised with other carps in ponds but the males and females should be separated at least a month before the breeding season.

Separating the fish prevents them from spawning in the pond. It also prevents them becoming stressed during netting and selection.

You can tell females and males apart quite easily. The vent of the male is deep and pit like. When you put a slight pressure on the belly during the breeding season, it oozes milt. The vent of the females is like a small tube-like outgrowth and the female's belly is soft and bulging.

Common carp grows fast.

It matures at six months.

It breeds two or three times a year.

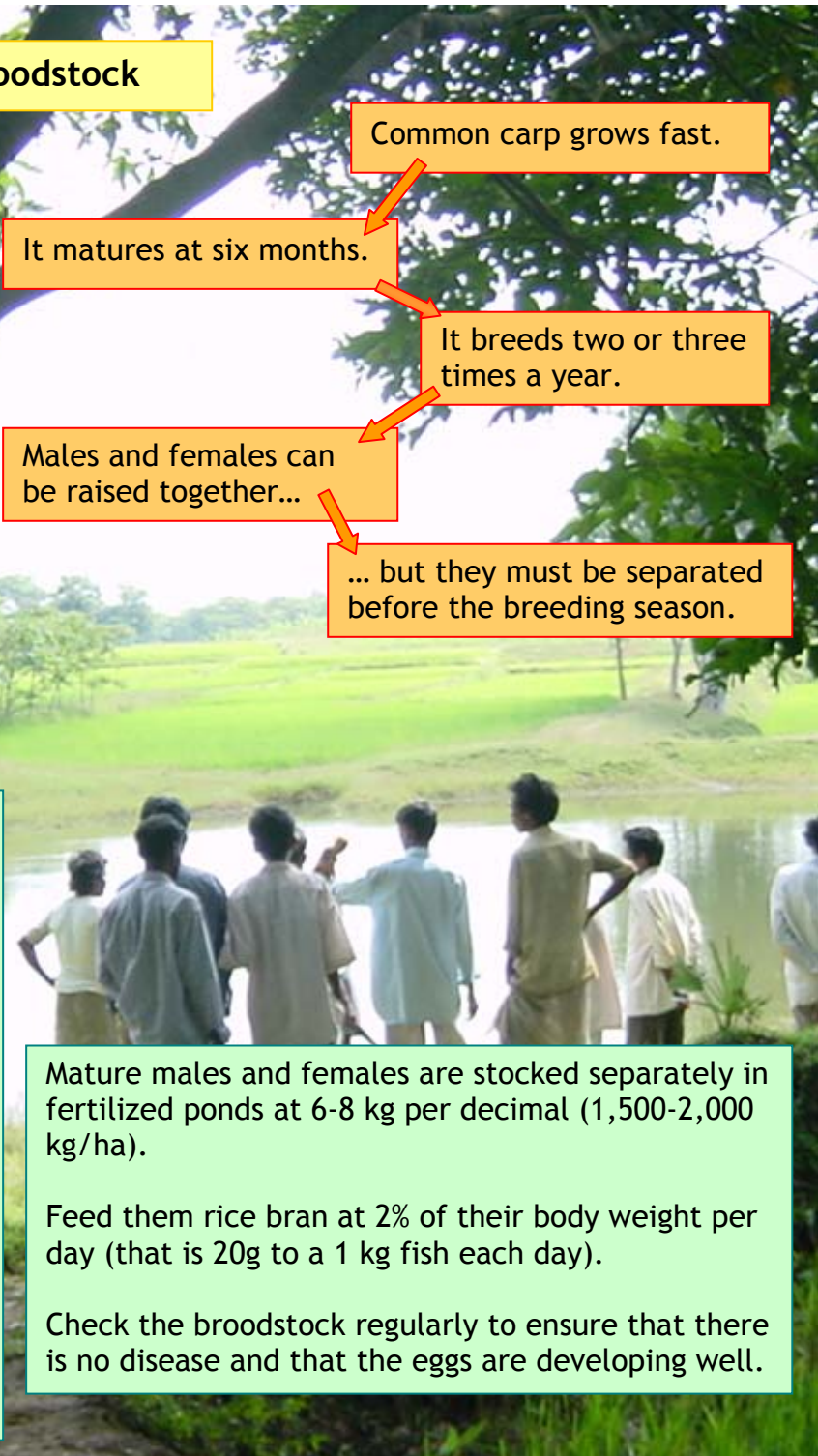
Males and females can be raised together...

... but they must be separated before the breeding season.

Mature males and females are stocked separately in fertilized ponds at 6-8 kg per decimal (1,500-2,000 kg/ha).

Feed them rice bran at 2% of their body weight per day (that is 20g to a 1 kg fish each day).

Check the broodstock regularly to ensure that there is no disease and that the eggs are developing well.



Spawning the carp in hapas

How will I know that the fish are ready to spawn?

Select fully mature fish. Males should weigh about 1 kg. They should ooze milt freely with the slightest pressure on their belly. Females should weigh 1.0-1.5 kg. The belly of the female should be sagging. The most mature females can sit on their belly without falling to the side.

Two males are put into a breeding hapa with one female. The two males together should weigh the same as or slightly more than the one female. The hapa should be 2 m by 1 m by 1 m.



This female Common Carp is small but fully mature.

How long will the spawning take?

The fish are put into the hapa for breeding in the evening. They spawn within 6-8 hours. When you look at the hapa in the morning, small, orange-colored, shiny eggs will be found sticking to the weed.



You can use strands of plastic weighted at the bottom instead of weeds for spawning Common Carp.

These carp eggs are sticking to the white strands of plastic.

What should I do when the fish have spawned?

When the fish have spawned, transfer the weed with the eggs attached to it, to a hapa for hatching.

A 1 kg female will give about 1.5 lakh of eggs. These eggs should be divided between three to four hapas. Each hapa should have no more than 50,000 eggs.

It is quite easy to tell which eggs are good and which are bad. The good eggs are shiny and translucent and the bad ones are white. Take some samples to check how many of the eggs have been fertilized.

Could you give me some advice about spawning carp in hapas?

The eggs of Common Carp are sticky so we put fresh aquatic weeds in the hapa. The female fish spawn on these.

The weeds that you put in the hapa, should weigh twice as much as the female fish. They should be washed with water, rinsed in a solution of potassium permanganate and spread in the hapa.

How long do the eggs take to hatch?

Hatching takes 40-72 hours. If the weather is cool the spawn takes a longer time to hatch. If it is warmer it hatches out more quickly.

After this time, you will see hatchlings on the sides and the bottom of the hapa. These hatchlings will have a yolk sac.

Remove the weeds carefully removed and the keep the hatchlings in the same hapa for 3-4 more days until the yolk sac is absorbed.



This spawn has just hatched out. It still has a yolk sac.

What should I do with the spawners then?

The spawners (both males and females) are given a potassium permanganate bath and released back in the respective pond to be used again.

The males mature quite quickly and can be used again for a second time after about a fortnight.

Spawning the carp in hatchery tanks

If you have large-sized females, it is better to spawn them in breeding pools in a hatchery.

You can use three or even four males of a smaller size for one large 3 to 4 kg female. In this case, you need to provide 6 to 8 kg weeds.

The breeding pool is the best method for mass breeding, especially during October-November and February-March, when the carp hatchery is not being used to breed Indian Major Carp.

Sometimes, weeds can create oxygen problems in the night, so we can use plastic strips or synthetic fibers which are tied or anchored at the bottom.

This prevents infection of the eggs by the bacteria and fungi sometimes found on the weeds from ponds.



These Common Carp are being spawned in a breeding pool in a hatchery.

Plastic strips are being used instead of weeds. This reduces the risk of infection and disease.

Spawning the carp using hormone injections

Common Carp can be made to spawn by injecting inducing agents such as *Ovaprim* and *Ovatide*. These can be bought at the market.

Only the females are injected. The males are kept separately to be used for fertilizing the eggs.

Fish farmers injecting a fish in Cambodia.

About three to four hours after the injection, the female is ready to release the eggs.

She is taken out and wiped with a dry towel.



To strip the eggs, hold the fish with its head higher than the tail so that the eggs can be collected in a tray.

Slowly and gently move the forefinger and the thumb from the neck region towards the vent, pressing slightly. The eggs will come out of the vent.

Spread the eggs evenly in the tray. This helps all the eggs to become fertilized and prevents them sticking in a single egg mass where oxygen be reduced.

More about spawning common carp using hormone injections

As soon as you have stripped the eggs, spread the milt from the males over them. If you have spread the eggs evenly in the tray, the milt will reach all of them.



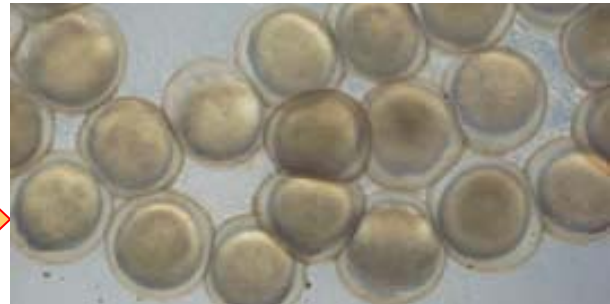
Milt needs to be spread immediately over the eggs to fertilize them.

Common Carp eggs, close-up, before washing.

When you have stripped the eggs and spread the milt over them, you need to remove the stickiness of the eggs.

Prepare a solution of 30 g urea and 40 g of sodium chloride in 10 liters of clean water. Add half of this to the egg-milt mixture. Stir it continuously for about five minutes. Then, use the rest of the solution to wash the eggs. Do this by adding small quantities every five minutes 10-12 times. During this process the eggs absorb water and swell (water-harden).

Finally wash the eggs using fresh water and put them into the hatching pool. Hatching will take 36-48 hours. After this, the spawn is ready for stocking in prepared nurseries at 20,000 per decimal.



Useful Contacts

Other Better-Practice Guidelines

There are many more Better-Practice Guidelines in this series.

You can get more copies of this and other Better-Practice Guidelines from your local One-stop Aqua Shop, STREAM India Communications Hub, from the STREAM Regional Office or from the STREAM Website.

www.streaminitiative.org

We would like your feedback about these Better-Practice Guidelines. You can let us know by phoning, emailing or writing to the Communications Hub Manager at your STREAM Country Office.

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