



## *De Rust Grass Carp Farm*

Tel: 023 - 616 2444  
Fax: 0865447505  
Email: [info@outdoorarena.co.za](mailto:info@outdoorarena.co.za)  
Web: [www.grasscarp.co.za](http://www.grasscarp.co.za)  
PO Box 15, Bonnievale, 6730

### **De Rust Grass Carp Stocking Policy**

All grass carp produced at De Rust, adhere to the conditions set out by the national grass carp policy and our EMP. We align ourselves 100% with the following policy statement in the grass carp protocol.

#### **Policy Statement**

The exotic Grass Carp (*Ctenopharyngodon idella*), although often effective in controlling aquatic weeds, is considered to pose a significant potential threat to certain natural aquatic habitats in South Africa. The stocking of this species should therefore be strictly controlled by a permit system. Furthermore only sterile (triploid), species pure, disease free, tagged fish from accredited producers should be stocked into non-sensitive waters in responsible manner.

## DETERMINING STOCKING RATES

For the purposes of making a quick and basic assessment of the proposed stocking, a stocking model was developed. An online question form is available on the website, [www.grasscarp.co.za](http://www.grasscarp.co.za). This must be completed as accurately as possible. GPS coordinates of the dam and ID number is essential.

The following procedure is followed to determine the amount of fish to be stocked into a water body:

1. Establish the size of the surface area of the dam.
2. Determine the stocking percentage or the percentage of weed infestation in the dam.
3. Determine the weed stocking factor of the weeds in the dam.
4. Enter information into stocking model.
5. Select the specific water use or application.
6. Consider other factors such as water depth and average temperature.
7. Select stocking rate for the specific size of fish.
8. Maintaining sustainable results.
9. Prerequisites to finalize stocking rates.
10. Permitting procedures.

1. Determining the size (surface area) of the dam.

A simple calculation is made to establish the surface area of the dam in square meters. The following formulas can be used:

- Surface area of square dams = Length x Width
- Surface area of triangular dams =  $\frac{1}{2}$  x Length x Width
- Surface area of round dams =  $22 \times \text{dam radius} \times \text{dam radius} / 7$
- Size can also be established using Google earth or maps

2. Determine the stocking percentage or the percentage of weed infestation in the dam.

Decide beforehand at what percentage stocking will be done, or estimate the percentage of weed infestation in the dam.

3. Determine the weed stocking factor of the weeds in the dam

In order to make an accurate determination of the stocking factor, it is important to make a positive identification of the weed type in the dam. To accomplish this, a website is used to identify the weeds. The link below should be followed:

<http://aquaplant.tamu.edu/plant-identification/>

After identifying the weed, the management options icon is selected. All the management options are listed as well as the weed factor in fish per acres.

4. Enter information into stocking model.

Information is entered into the stocking model example below:

LENGTH	WIDTH	HA SURFACE AREA	Stocking% or WEED FACTOR	WEED TYPE STOCKING RATE PER ACRE	WEED TYPE STOCKING RATE PER HECTARE	LOW DAM LEVEL FACTOR	HIGH DAM LEVEL FACTOR
500	200	10	100	12	30.00	0.6	1
PROPOSED OPTIONS							
FISH SIZE IN CM	15	20	25	30	40	NETT STOCKING AREA IN HA	CALCULATED WEED MASS IN TONS
% FISH MORTALITY FACTOR	1.66	1.50	1.33	1.02	1.00	10.00	50
STOCKING HIGH NUTRIANTS	623	563	499	383	375	WORKING POPULATION	Kg WEED PER FISH
NORMAL STOCKING	498	450	399	306	300	300	166.67
STOCKING ANGLING DAMS	398	360	319	245	240		
STOCKING NEW DAM	100	90	80	61	60		

5. Select the specific water use or application

A decision is made as to what the dam is used for. In the case of an angling dam, stocking rates should be lower to provide some cover for smaller fish.

6. Consider other factors such as water depth and average temperature.

A series of other factors could be considered. The following is examples of factors that could play a role:

- Water depth
- Seasonal temperatures
- Other fish species present in the dam
- Soil type
- Water color
- Water level fluctuations
- Water quality
- Human activity
- Time frame for aquatic weed control

7. Select a stocking rate for the specific size of fish

The ideal will always be to stock big fish. Factors such as the cost of air travel and transport for bigger fish, sometimes outweighs the mortality factor of smaller fish.

Different sizes of fish are priced in such a way that irregardless of size, the eventual cost per hectare is more or less the same.

The table below was compiled after years of research in the USA. It serves as a good guideline to determine mortalities in South Africa.

The same type of predators and conditions are present in South Africa.

Information was obtained from:

**MANAGING AQUATIC VEGETATION WITH GRASS CARP**

A Guide for Water Resource Managers

John R. Cassini, Editor

<b>Tripliod Grass Carp Mortality Rates. Information from Florida Game and Fresh Water Fish Commision, Aquatic Plant Management Operations Manual</b>			
<b>Size of Fish (inches)</b>	<b>Survival factor</b>	<b>Mortality Rate</b>	<b>Fish/acre</b>
6.0	0.3333	66.6%	30
6.5	0.3703	63.0%	27
7.0	0.4000	60.0%	25
7.5	0.4347	56.5%	23
8.0	0.5000	50.0%	20
8.5	0.5233	17.4%	19
9.0	0.5555	44.5%	18
9.3	0.5882	41.2%	17
10.0	0.6666	33.3%	15
10.5	0.7500	25.0%	13
11.0	0.3333	16.7%	12
11.3	0.8989	11.0%	11
12.0	0.9595	1.4%	10

8. Maintaining sustainable results.

Grass Carp is a very hardy species of fish. Under average conditions aquatic weed control should be maintained for at least ten years.

The ideal would be to restock at 10% every year after the initial stocking. As this is in most cases not practical or cost effective, the dam should be monitored annually to follow the progress made. A good practice would be to take a photograph every year from the same position overlooking the dam. Photos could then be compared to establish any changes in the visible weed infestation

Grass carp is just one of the tools available to manage aquatic weeds and should be managed as any other tool available.

9. Prerequisites for finalizing stocking rates.

A quote and proposed stocking model will be sent to the client for scrutiny and authorization.

The proposed stocking rates will then accompany the permit application to the relevant provincial nature conservation authority, for scrutiny and verification.

#### 10. Permitting procedures.

No stocking will be conducted without the necessary permits. As the hatchery is situated in the Western Cape, a Cape Nature travel permit must also be applied for, after the issuing of the provincial stocking and travel permit. Detail permitting procedures can also be viewed on our website. [www.grasscarp.co.za](http://www.grasscarp.co.za)

Permitting applications can be conducted by us on your behalf.