

# Independent feed test with Takazumi Koi Food

By Dipl.-Ing. (FH) Lars Sebralla

www.koiratgeber.de

Products:	<b>Gold Plus</b>	Colour feed	floating
	<b>High Growth</b>	Growth feed	floating
	<b>Mix</b>	Mixture of Colour and Growth	floating
	<b>Easy</b>	Standard	sinking
	<b>Yugen</b>	Feed with immune modulator	floating
	Reference 1	Company 1 Colour feed	floating
	Reference 2	Company 2 Standard feed	floating
	Reference 3	Company 3 mixture Colour and Growth	floating

Subjects: Digestibility in relation to use of membrane  
Influence of Yugen on digestion  
Optical impression of koi  
Growth

Status: Test finished (2010-01-10)

Parameters:

1. Pond 30,000 litres (6,600 gal)
2. Membrane filter 'Smartpond S800'
  - With membrane usage counter
  - Constant flow of 25,000litres/h (5,500 gal/h)
  - Identical type of membrane
  - Membrane width 750 mm (30")
3. Water:
  - Temperature 20 - 22 °C
  - O<sub>2</sub> saturation 102 - 108 %
  - pH 7.5 - 8.1
  - KH 12-14 °dH
  - Nitrate 50 mg/litre (3.5 grain/gal)
4. Number of koi: 23

## Part 1: Accuracy of the method

A constant quantity of 500 g (17.6 oz) of **High Growth** is fed on a daily basis. The daily consumption of membrane is determined and documented for a longer period of time. The average membrane usage is calculated.

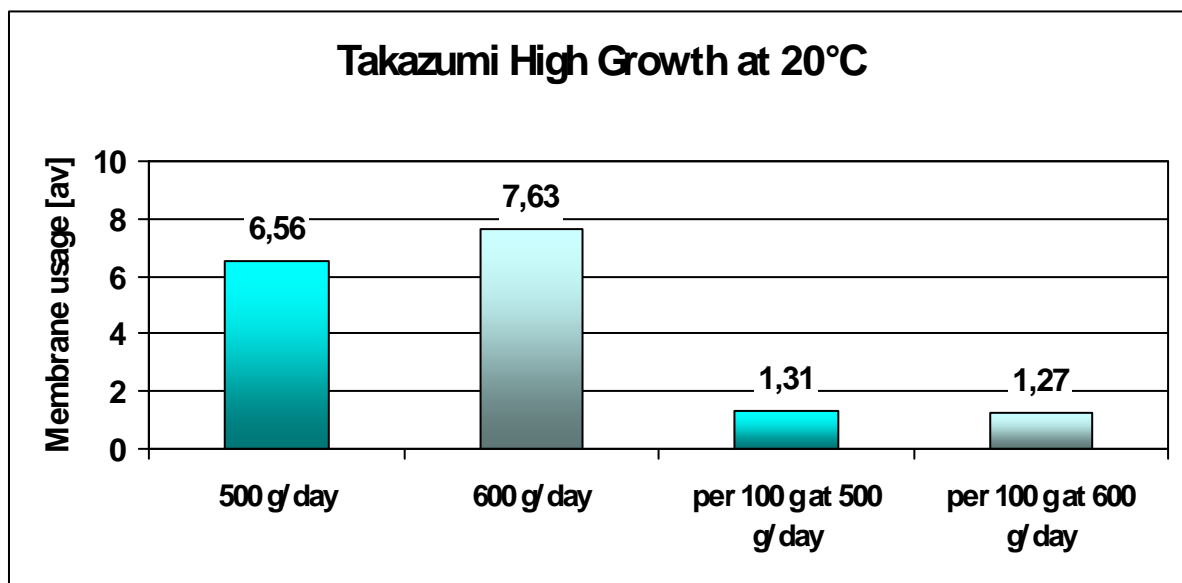
Three weeks later, after a change to **Mix** feed, a daily quantity of 600 g (21.2 oz) of **High Growth** is fed for comparison. Again the daily usage of membrane is determined and documented for a longer period of time. The average membrane usage is calculated.

The membrane usage is expressed per 100 grams of feed.

*Table 1: membrane usage in metres for High Growth*

	500 g/day	600 g/day	Per 100 g at 500 g/day	Per 100 g at 600 g/day
Membrane usage [av]	6.56	7.63	1.31	1.27

*Image 1: Membrane usage in metres for High Growth*



### Result:

The measuring method shows a 0.04 m (4 cm) deviation. Consequently it is sufficiently accurate.

After this values will be indicated to 1 decimal place.

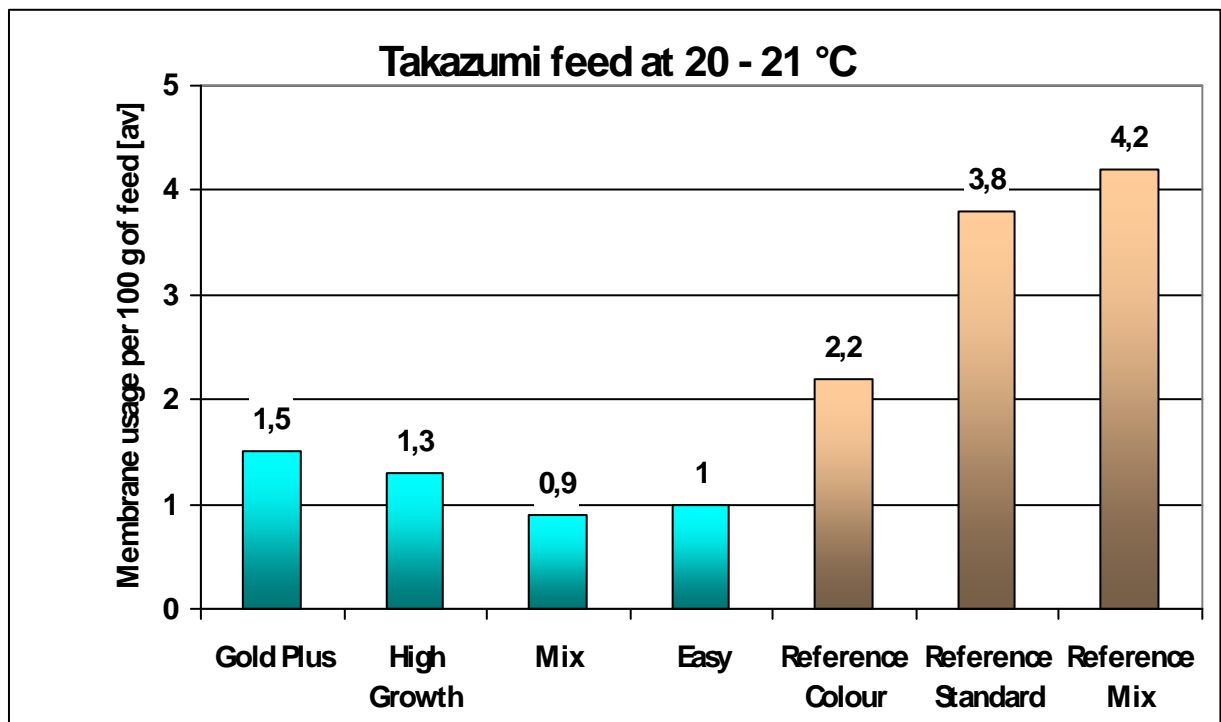
## Part 2: Comparison of types of feed

Every day's weighed out quantity of feed is kept constant. The daily usage of membrane is determined and documented for a longer period of time. The average membrane usage is calculated.

Table 2: Membrane usage in metres per 100 grams of feed

	Gold Plus	High Growth	Mix	Easy	Reference Colour	Reference Standard	Reference Mix
Membrane usage [av]	1.5	1.3	0.9	1.0	2.2	3.8	4.2

Image 2: Membrane usage in metres per 100 grams of feed



### Result:

The discrimination is obvious. The digestibility and with that the beneficial use of the feed is quite distinguished between Takazumi and the other feeds. All Takazumi feeds are better digested. There is less excretion.

## Part 3: The influence of Yugen

A daily constant quantity of **Mix** is fed, which is immediately followed by 5 days feeding with Yugen and then feeding **Mix** again. The daily usage of membrane is determined and documented for a longer period of time. The average membrane usage is calculated.

*Table 3: Membrane usage in metres per 500 g per day of Mix and Yugen respectively*

Type of feed	Membrane usage [av]
Mix	4.0
Mix	5.0
Mix	5.0
Mix	6.0
Mix	5.0
Mix	4.0
Mix	5.0
Mix	5.0
Mix	5.0
Mix	4.0
Mix	4.0
Yugen	4.1
Yugen	4.5
Yugen	4.0
Yugen	4.4
Yugen	4.1
Mix	3.6
Mix	3.0
Mix	4.0
Mix	3.7
Mix	3.0
Mix	3.5
Mix	3.5
Mix	3.0
Mix	3.8

Image 3: Membrane usage in metres per 500 g per day of Mix and Yugen respectively

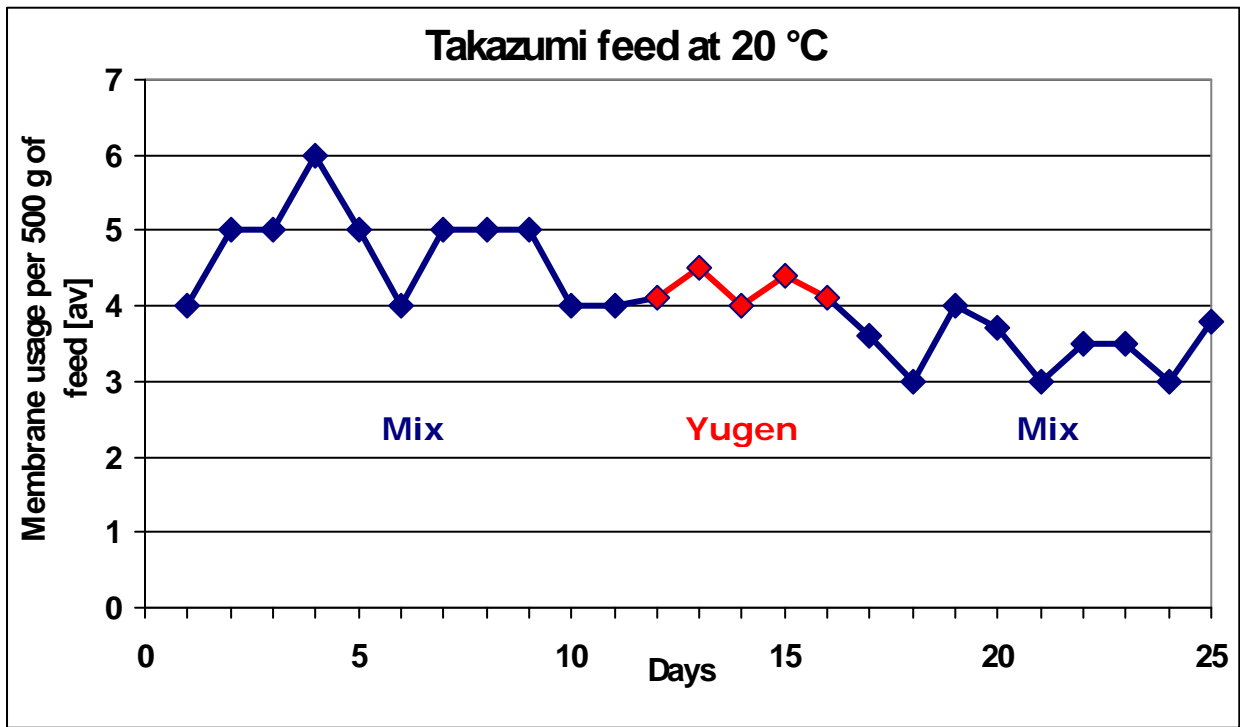
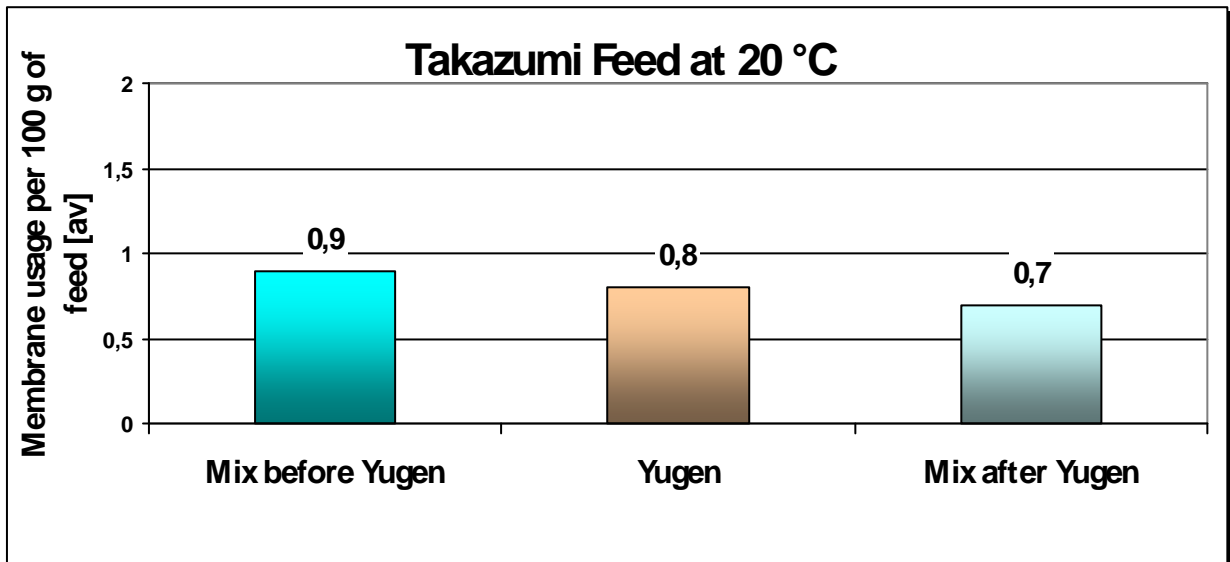


Image 4: Membrane usage in metres per 100 g per day of Mix and Yugen respectively



*Result:*

After feeding with Yugen the digestion is better then before. The beneficial use of the feed even enhances.

## Part 4: Optical impression of the koi

The skin gloss was preserved or improved. Even fish that used to have a couple of 'bad gloss' weeks again and again it was constantly well preserved.

The white has not developed negatively while feeding **Gold Plus**; it has rather become more bright. White remained white! Generally the colours are more saturated and the colour boundaries remained clear.

Fish that fed very reservedly, have now actively joined the eating.

With no exception all koi have positively developed.

## Part 5: Growth

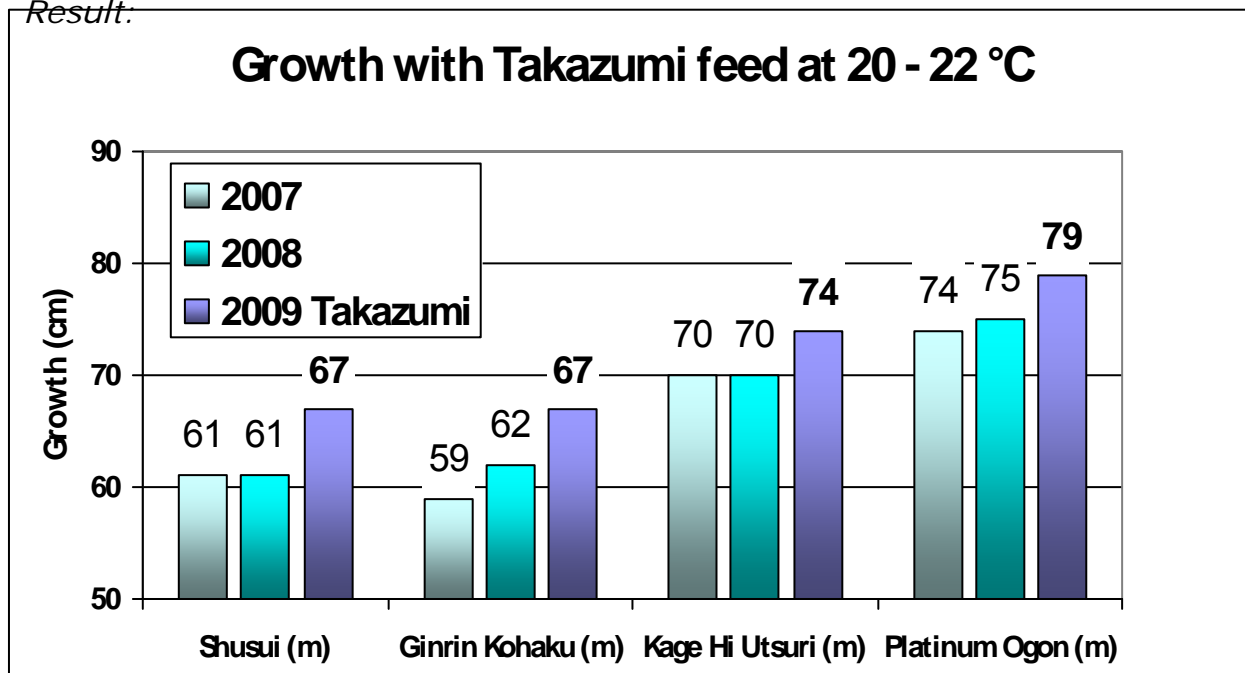
All koi are measured each year in late autumn. Table 4 shows an excerpt from the measuring information.

Table 4: Growth of koi from 2007 to 2009

	Shusui (♂ *1997)	Ginrin Kohaku (♂ *2003)	Kage Hi Utsuri (♂ *2001)	Platinum Ogon (♂ *2003)
2007	61	59	70	74
2008	61	62	70	75
2009 Takazumi	67	67	74	79

Image 5: Growth of koi from 2007 to 2009

Result:



By feeding with Takazumi Koi Food koi that have not shown any growth for two years have grown again. The example of the four male koi clearly demonstrates how well the feed can be processed by the fish.