




**Reinvent carp as a traditional food fish  
from pond aquaculture:  
Czech prospects and weaknesses**

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Carp pond farming is a kind of cultural and historical heritage with almost one thousand-year history



First fishponds on the Czech territory

- 10th/11th centuries

↓  
production 10 - 20 kg per ha

14th century  $\Rightarrow$  75,000 ha  $\Rightarrow$  30 kg/ha

16th/17th century  $\Rightarrow$  180,000 ha  $\Rightarrow$   $\approx$  30 kg/ha

1930's  $\Rightarrow$  45,000 ha  $\Rightarrow$   $\approx$  80 kg/ha

2000's  $\Rightarrow$  51,000 ha  $\approx$  450 kg/ha (250-800 kg/ha)

2003  $\Rightarrow$  200 (~ 500 m altitude) - 907 kg/ha (~ 200 m altitude)

# Pond polycultures composition (2004 data)

**Common carp (*Cyprinus carpio*) - 90.8%**

**Tench (*Tinca tinca*) - 1.0%**

## Herbivorous fish

- grass carp (*Ctenopharyngodon idella*) - 1.5%
- bighead and silver carp (*Aristichthys nobilis* and *Hypophthalmichthys molitrix*) - 3.0%

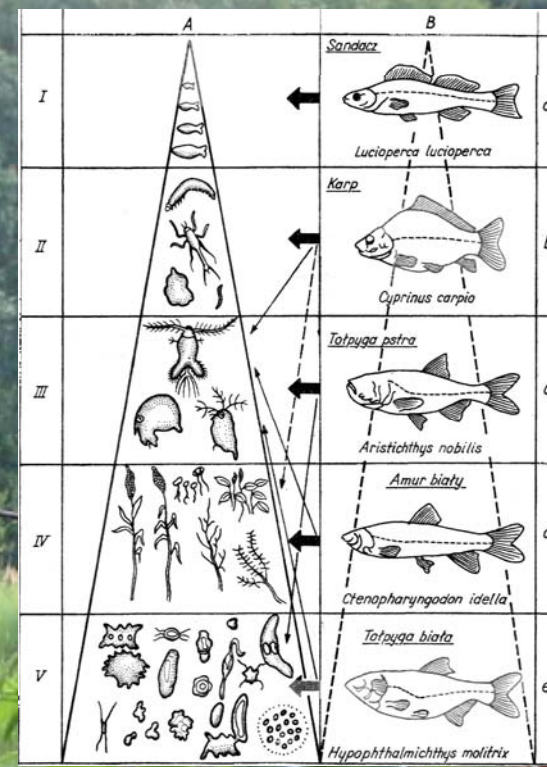
## Predatory fish

- pike (*Esox lucius*) - 0.4%
- zander (*Sander lucioperca*) - 0.3%
- wels (*Silurus glanis*) - 0.3%
- perch (*Perca fluviatilis*) - 0.1%

**Rainbow trout (*Oncorhynchus mykiss*) - 0.1%**

**Coregonids - (*Coregonus lavaretus* and *C. peled*) - 0.1%**

**Others - 2.3%**



# Dominating fish species

Common carp (*Cyprinus carpio*) -  $\approx$  88-90%

- marketable size 1.5 - 3 kg
- (2)3 - 4(5) year-old fish
- 80% of carp are sold during December as a traditional Christmas Eve dish (carp soup and fried steak)
- Czech live gene bank of carp includes  $\approx$  20 carp strains





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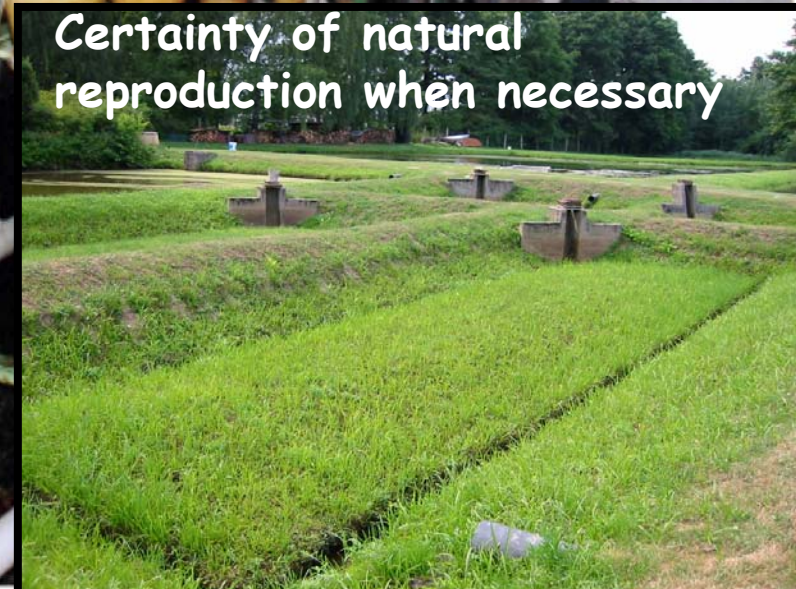
# Why carp?

- flesh quality
- efficient utilization both of natural food items and artificial feeds (cereals)
- high fecundity
- good growth rate
- high resistance against:
  - unfavourable environmental conditions
  - handling
  - transportation
  - storage alive in high biomass

**High fecundity** => well mastered **artificial** propagation and hatching



Certainty of natural reproduction when necessary



Appropriate growth rate

First year  
Nursing ponds



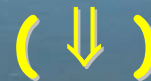
Hatchery tanks



advanced fry 0.3 - 1.5 g



fingerlings 15 - 50 g



(overwintering ponds)



< 1 ha



# Second year Ongrowing ponds



150 - 500 g

3 - 10 ha



(overwintering ponds)





# Third year Marketing ponds



1 - 2 kg

10 - 100 (max 500) ha



storage ponds



market



# High resistance to handling



# High resistance to storage and transportation stress



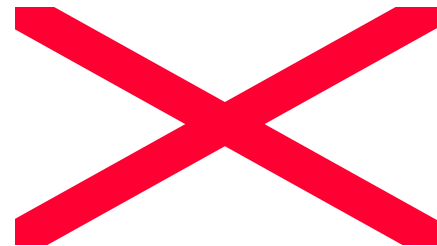
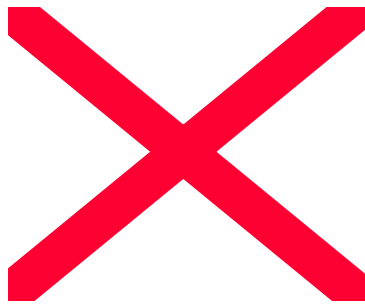
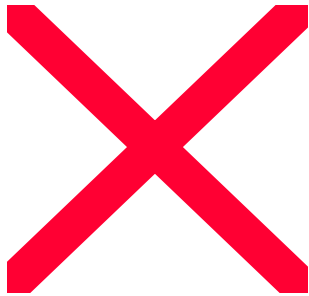
efficient utilization both of  
natural food resources  
(often supported by manuring)



and artificial  
feeds (cereals)  
supply  
(~ 30% of the  
total yield)



# Flesh quality





Czech carp

is not considered only as a food fish  
but its consumption is associated also  
with religious traditions

However,

despite increasing demand for fish products on the Czech fish market, the interest for **live** carp as a traditional food fish, slowly declines.

The reasons are above all in

- aversive approach to fish killing, gutting and carving
- accentuated feelings for animal welfare
- rich supply of various fish products of foreign (marine in particular) origin
- numerous Y-shaped bones in carp flesh





82,00  
+ 5% DPH 54,60

100,00  
+ 5% DPH 157,50

199,00  
+ 5% DPH 208,95

114,00  
+ 5% DPH 119,70

161,00  
+ 5% DPH

carp



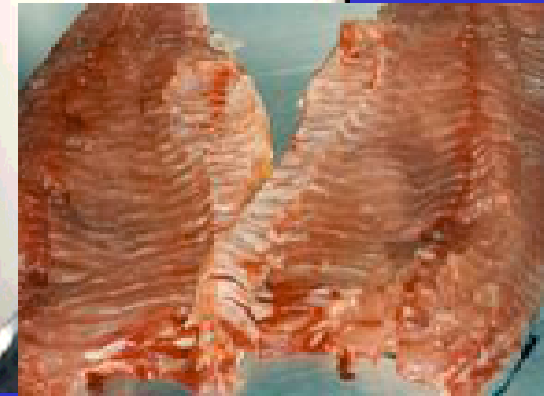
**makro**  
denni nabídka  
LOSOS  
PILLET  
KATK  
MARELA  
TRESKA  
Ceny jsou bez DPH

AMČOVIČKY Kg 169,- 129,45  
 KREVELY 50-100 -395,-  
 SARDINKY Kg 240,-  
 SUŠEC Kg 154,-  
 STIEKA Kg 182,-  
 KARPAK Kg 59,- 59,-  
 KARPAK Kg 59,- 59,-

PARKVICE Kg 262,50  
 CHOBOTNICE Kg 110,- 110,-  
 MORSKY VLK Kg 289,50  
 KALAMARY CELÉ Kg 389,- 424,91  
 KALAMARY OČETNÉ Kg 299,- 355,81  
 MARELA Kg 530,-  
 PRAHA KŘÍLOVSKÁ Kg 205,- 225,15  
 MAKUŠKA Kg 140,- 155,50  
 TRESKA BEZHOUSÁ Kg 189,-

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The problem of Y-shaped flesh bones appearance can be solved by application of special bone cutting machines



by courtesy of Laszlo Varadi 2005

# Weaknesses and constraints affecting Czech carp production

- multifunctional role of fish ponds accompanied by declining fish farming relevance
- statutory banned feeding and manuring allowed exclusively on the basis of time and site limited permission with given (tough) limit values of main environment quality determinants
- nature protection and increased numbers of piscivorous predators



# Fundamentals for next development inhere in

- historical tradition
- sustainability of Czech pond aquaculture
- further support of consumers' continuous whole-year interest in carp as a food fish

# Potentials for increased (steady?) demand for carp on the Czech fish market

- carp promotion as
  - a healthy food
  - a natural (ecological, almost organic) product
- wide-ranging spectrum of processed and ready-to-cook products
- increased propagation utilising various forms of advertising

# carp promotion as a healthy food

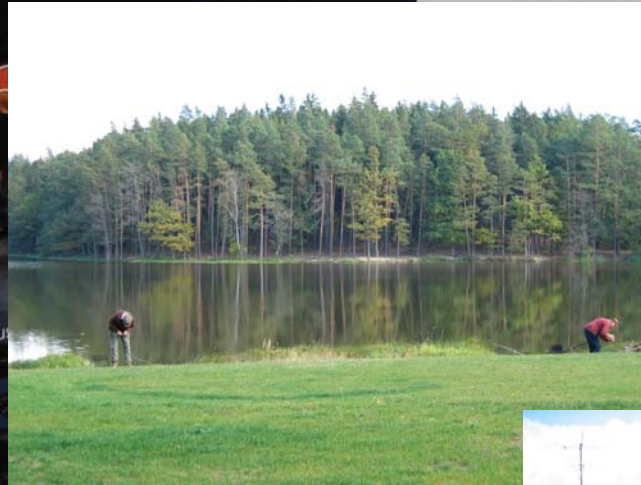
catch and on-site-cook approach (agro-tourism)

**Grilujete?**

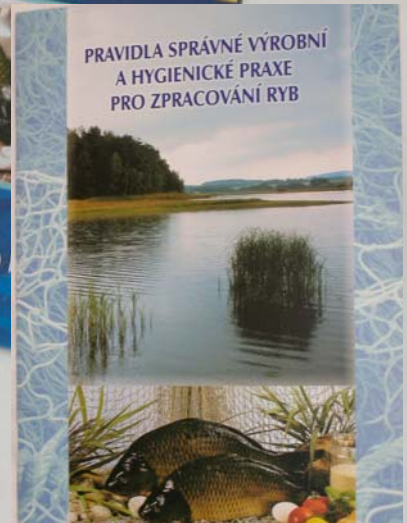
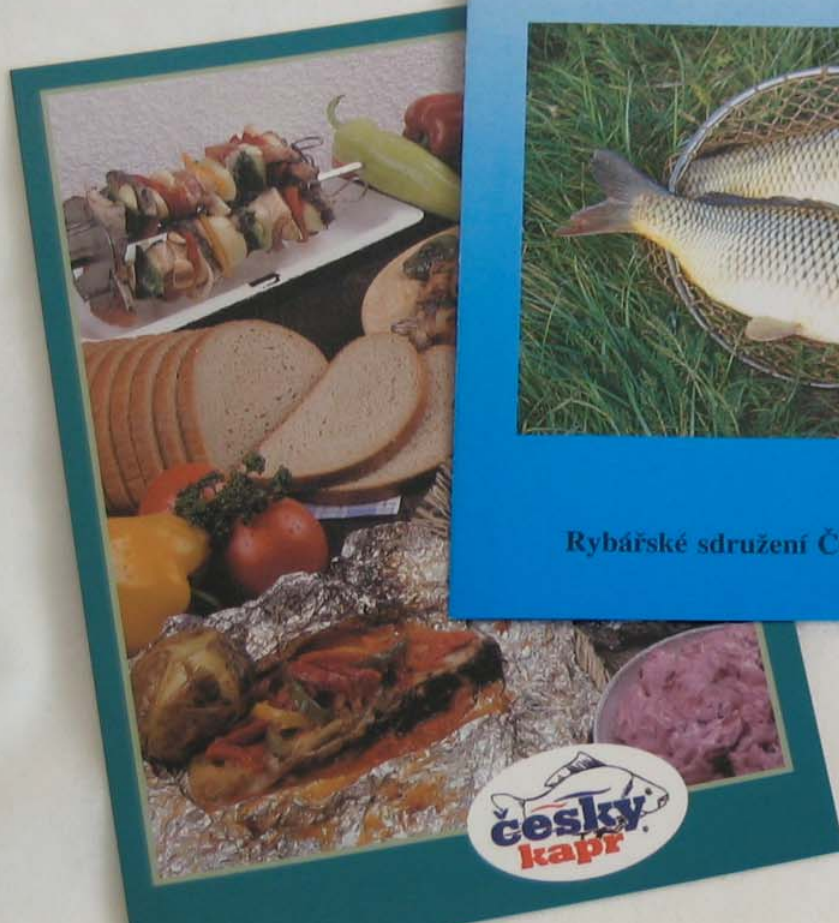
- Grilování ryb není jen o jídle, ale především o přátelské atmosféře navozené otevřeným ohněm, na němž upravená ryba chutná dvojnásobně
- Ryby se připravují bez tuku
- Příjemná vůně a chuť ryb vám učaruje
- Grilování ryb je zároveň festivalem koření
- Připravte se na to, že grilovaných ryb nebude nikdy tolik, aby u

**cesky kapr**

RYBÁRSKÉ SDRUŽENÍ ČESKÉ REPUBLIKY  
www.cz-ryby.cz

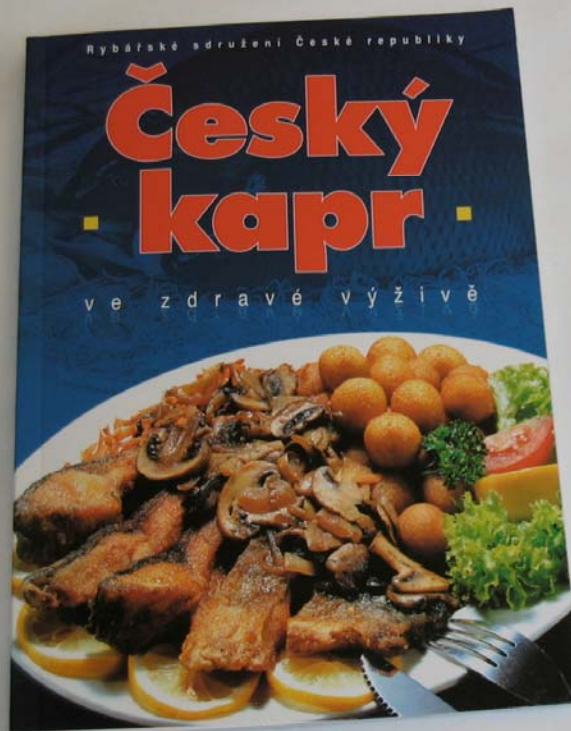


# advices and recommendations



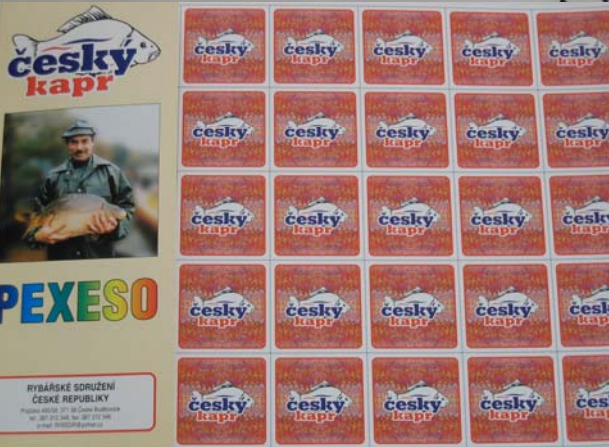


recipes





advertising



# POHOŘELICKÝ KAPR

Udělejte něco pro své zdraví nejen o Vánocích !

# product diversification with particular respect to ready-to-cook products



Enjoy carp!

Thank you for  
your  
attention!

