

# VALLEY OF THE SUN KOI CLUB



## Desert Koi Newsletter April 2006

### President's Message

Hi All! Hope all your fish are healthy as the weather starts to warm. Water quality is key, regular changes will help do the trick.

See everyone at the next meeting as we start to plan the clubs' next activities.

Sincerely, **Corey Garrett VSKC President**



VISIT THE NEW VALLEY OF THE SUN KOI CLUB WEB SITE

[WWW.VSKC.NET](http://WWW.VSKC.NET)

### Officers

President: Corey Garrett  
Treasure: Derek Tang  
Web Master: Tom Ayers

VP of Education: Robert Lang  
Secretary: Jeanne Taylor  
AKCA Representative: David Yee

VP & 2006 Show Chair: Frank Valdez  
2006 Show Co-Chair: Jim Crutch  
Newsletter Editor: Robin R. Patton

For those of you that are receiving this newsletter by mail and have an email address, please send your email address to Robin Patton so that we can send you future newsletters by email.

**Don & Karen Chantemerle**

**Location:**

**Tel:**

**Please join us at 1:30 for pond viewing  
and the meeting at 2:00 PM**

**Mazuri Sponsored Educational Topic:**

**Koi Nutrition by**

**by Stephanie G. McLean**

**Technical Specialist, Mazuri**

**Land O' Lakes Purina Feed LLC (520-850-0411)**

**Stephanie.mclean@purinamills.com**



## March 19, 2006 Koi Club Minutes

1. Call for any new members or visitors-Dennis & Jennifer Beard are new members. Dennis is a retired Lt Cornel and Jennifer is his daughter.
2. 2006 Koi Show-
  - a) Tucson related they are missing 57 bungee cords and two tent legs. Larry related that the bungee cords were not used and one of their tents was missing two sections of one leg. We used a piece of PVC pipe in its place. Robbi will relay this information to Tucson.
  - b) Patrick Welch from the Chinese Cultural Center has asked the club to reimburse the center for the generator usage. The bill is about \$1500. There was considerable discussion regarding this. Pertinent points: 1) When we moved our show to the Chinese Cultural Center we were told by KC Tang (President of the event) that all electrical, water, parking, the entire CFCO street, and 4 canopies would be free of charge for the clubs usage. 2) The generator is shared by many vendors. 3) We have not paid any monies for its usage in the past. 4) This year we were not given 4 canopies only one. 5) We were never allowed to use the entire CFCO Street. Rental of a generator would have the cost club \$250 plus fuel. Motion was made by David Yee-Corey & Robbi will go speak With Patrick and discuss the issue. A max amount of \$250 dollars may be offered to the Cultrual Center. Motion was second by Brian. Motion passed.
  - c) David Yee brought up an issue of our post show trash being left at the show site. Robbi also indicated she had been approached about this. Next year we would be charged \$200 for its pick up. Apparently the Chinese Festival Committee took photos of our area and showed these to David. There was considerable discussion regarding this. Pertinent points: 1) There were no trash cans provided this year. 2) We were never given any guidance on what to do with our trash. 3) If we were told what to do with the trash we would have taken care of it. 4) Robbi made sure it was all left next to the curb in one pile were our central canopy was. 5) We can not be held responsible for the wind, vandals, animals ect once we left the area. Motion was made by David Yee- That we would donate \$100 to the Chinese Festival Committee towards the trash fee. Motion was seconded by Dennis. Motion passed.
3. 2007 AKCA Seminar- We will divide up a work schedule for those going to New York. This will be to man a booth advertising the 2007 Seminar.
4. David Yee announced that it is state regulation to have mosquito fish in all ponds. Robbi indicated she would check the Maricopa County West Nile site and update the club.
- 5) AKCA Report by David Yee-The deadline is approaching for the 2006 AKCA Seminar. There are early registration discounts. Please remember to bring a passport.
- 6) Treasures Report by Derrick Tang-Derrick was not present.
- 7) Masuri Koi Food Educational Topic-Judging Beni Komonryo by Robbi McCleney.
- 8) We are moving the annual picnic to October 2006. This will mean cooler weather; hopefully more members will attend.
- 9) Corey asked for volunteers to help with the September Home & Garden Show.
- 10) Brain presented his pond and filter system.
- 11) Meeting was adjourned.

**INTERNATIONAL WATERLILY AND WATER GARDEN SOCIETY  
ANNUAL SYMPOSIUM AND MEETING  
FORT LAUDERDALE/VERO BEACH/ORLANDO, FLORIDA USA  
JULY 19-25, 2006**

This rewarding international educational and networking event begins in beautiful Fort Lauderdale, Florida, USA, then moves to lovely Vero Beach, and ends in magical Orlando. Numerous activities include stimulating water garden seminars, forums, and tours. International experts present informative sessions covering topics as diverse as practical techniques for propagating aquatics, the artistic aspects of water gardens, tissue culture of aquatics, and successful predator control in plant ponds. Tours explore awesome wholesale aquatic growers, a fabulous retail water garden center, exotic subtropical private water gardens, a progressive koi farm, a large cutting-edge tissue culture grower, inspiring botanical gardens, and much more. Flexible registration options allow you to attend for only a day or two, at your pleasure. We extend a special invitation to all our water gardening friends in the Caribbean and Central and South America to join for us for this special event.

**Wednesday, July 19** - Fort Lauderdale - Evening Welcome Reception

**Thursday, July 20 - Tour Day:**

Florida Aquatic Nurseries- Florida's large aquarium and water garden plant nursery. At FAN we will host the premiere of the IWGS In-Pond Poster Sessions. Want to compare and photograph blue water lilies? Curious about starting and propagating vivipis? Flamingo Gardens, a botanical garden with subtropical flora and fauna  
Dania Beach Water Gardens, an historic and unique retail store  
Private water gardens

**Friday, July 21 - Airboat Trip in the Everglades**

Travel to our next hotel, on the coast in on the Atlantic Coast in Stuart  
Free time on the beach or nearby Florida Oceanographic Center  
Discussion groups  
Sea turtle viewing after dark (if we're lucky)

**Saturday, July 22 - Tour Day:**

Aquatic Systems and Resources in Palm City, a wholesale grower and distributor of hardgoods  
Private waterfront garden of the owner of Botanics Wholesale-a plam tree specialist  
Harbor Branch Oceanographic Institution in Vero Beach  
McKee Botanical Garden, view the IWGS New Waterlily Competition within this splendid garden  
A sensational private water garden  
Travel to our Orlando hotel on International Drive

**Sunday, July 23 -- Education Day, Seminar Day**

Aquatic Plant Propagation Techniques  
Aquatic Tissue Culture: Successes, Failures and Possibilities  
Water Gardens as Art in Landscape Design  
Lotuses  
Time Release Fertilizers for Aquatics  
Predator Control in Aquatic Plant Ponds  
Other activities include auction, General Meeting, IWGS Hall of Fame Awards Banquet

**Monday, July 24 - Tour and Forum Day:**

AgriStarts, large cutting-edge tissue culture grower of terrestrial and aquatic plants  
Blackwater Creek Koi Farms, koi importer and breeder  
Private water gardens  
Informal forums in the evening

**Tuesday, July 25--Tour Silver Springs**

Silver Springs is the world's largest artesian spring, with millions of gallons of crystal clear water welling up out of the ground, at a constant 72deg. It's the place to see aquatic flora and fauna in all their beauty (both above and below the water). [www.floridasprings.org](http://www.floridasprings.org) or <http://www.silversprings.com/cruises.html>

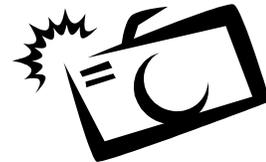
For more information, pricing, and registration brochures contact [info@iwgs.org](mailto:info@iwgs.org)  
(Program is subject to change due to unforeseen circumstances.)

International Waterlily and Water Gardening Society 6828 26th St W, Bradenton, FL 34207 USA 941-756-0880





We need photos for our web site, [www.vskc.net](http://www.vskc.net).  
Send photos to \_\_\_\_\_



or call Tom Ayers at

### LOST & FOUND

Found at the Koi Show

- 1) Hawaiian Print Shirt
- 2) Black & Brown Jacket
- 3) Greenish pullover sweater

### PLEASE FIND

Yellow socket type of wrench, looks like a screw driver. Last seen in Corey Garrett's hands. Bryan misses this tool. Please return!

Contact Robbi for these items.

**Crystal Clear Water Guaranteed!**

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[www.MacArthurWaterGardens.com](http://www.MacArthurWaterGardens.com)

## AKCA INFORMATION

The 25<sup>th</sup> Annual AKCA KOI Seminar will be at Niagara Falls/Buffalo, New York from June 22-25,2006  
Visit the AKCA website at <http://www.akca.org/>

Where can you go to learn all about keeping healthy beautiful koi?

Where can you go to meet hundreds of friendly folds that love koi nearly as much as you do?

Where can you find 50 or more vendors selling the products you need for your pond?

A passport will be needed if you decide to go to Canada.

David Yee VSKC AKCA Representative

## ASK BRYAN

**Question:** What can I do about algae ?

**Answer:** Algae problems are generally related to either green water or string algae, one of the two. Green water is the result of a microscopic free-floating algae bloom; string algae iws a fibrous, mossy-looking growth attached to surfaces in the pond. I have two ponds in my backyard. One had a UV and the water is clear the second pond did not. You could not see past one inch of water because the water was so green and had to drain the pond to see the Koi. I recently installed an emperor aquatics UV on the second pond. It took a little over a week to clear but the change was dramatic.

Here are some helpful hints to control green water or string algae

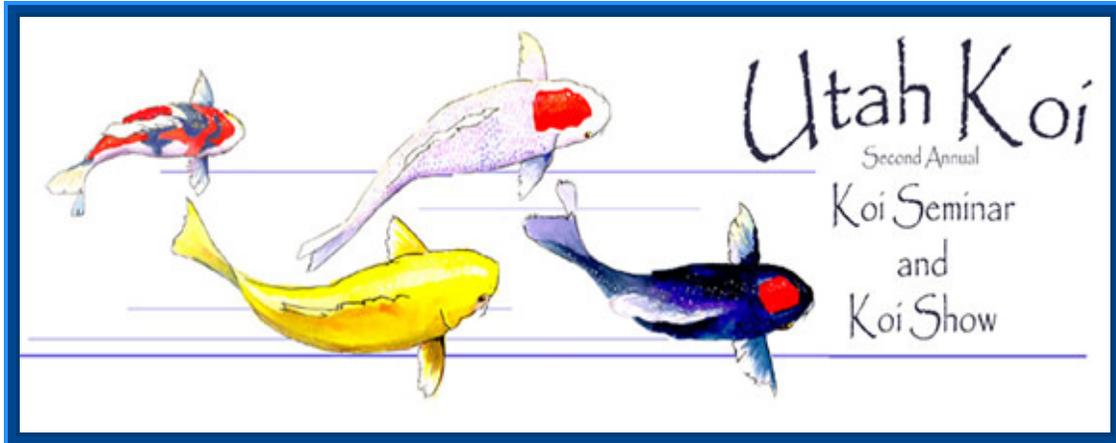
- Shade the pond.
- Remove particulate matter.
- Use water clarifiers or algaecides to promote natural balance.
- Cultivate smooth algae growth on pond walls.
- Provide adequate biological competition.
- Install a ultra violet system to control suspended planktonic algae.
- Use rock salt @ 1#/100 gal. in koi ponds only as a prevention for stringy algae.



SEPTEMBER 22, 23, 24 2006

ARIZONA STATE FAIRGROUNDS

We need help contact Corey



**- Special Guest Speaker Sandra Yosha -**

**D.V.M. Specializing in Koi Health, A.K.C.A. Member, and also a member of the Koi Health Advisory Committee that certifies K.H.A. Members**

**Schedule of Events**

**Friday, May 19th:**

7:00 p.m. Meet at Tepanyaki Japanese Steak House [7233 S. Plaza Center Drive West Jordan, UT 84084 Phone: 282-9700] Informal Dinner, Every one will be responsible for their own meal. During dinner you will have time to meet our guest speakers, and have an informal Q and A session.

**Saturday, May 20th:**

Sandra Yosha Advanced Koi Keeping Class

- \*9:00 a.m. Review of Common Fish Diseases & Updates on disease trends in Koi
  - \* 10:00 a.m. Emergency Preparedness
  - \* 11:00 a.m. Viral Diseases of Koi and Quarantine - Principles and Practice
  - \*12:00 p.m. Using a Microscope and Stains to identify Parasites and Flukes with David Cohen D.V.M.
  - \*1:00 p.m. Luncheon [present your lunch tickets]
  - \* 1:00-4:00 p.m. Pond Tour. Please register for pond tour with Richard & Rosie Cobbley, members of Utah Water Garden Club
  - \*6:00 p.m. Hawaiian Luau / Polynesian Dancers [Bring your dinner tickets] Open board discussion afterwards
- Sunday, May 21<sup>st</sup>

**Sunday, May 21<sup>st</sup>:**

Sandra Yosha Advanced Koi Keeping Class

- \* 9:00 a.m. Review of Common Fish Parasites- and how to identify them
- \* 10:00 a.m. Parasite Control Strategies for Koi and goldfish
- \* 11:00 a.m. Veterinary Care for Fish - How to find and use qualified Veterinarians
- \* 12:00 p.m. Using a Microscope and Stains to identify Parasites and Flukes
- \*1:00 p.m. Luncheon [present your lunch ticket]
- \* 2:00 p.m. KHA SPECIAL SESSION FOR CONTINUING EDUCATION [You must be KHA Certified. To find out how to certify to become a KHA Member, contact Sandra Yosha]

Call in Seminar Reservations: 1-801-965-8767

For more information email to: [info@utahkoi.com](mailto:info@utahkoi.com)

Or visit our web site: [www.utahkoi.com](http://www.utahkoi.com)

Feb. 1, 1999

## **SHELF LIFE OF KOI FEEDS**

Dr. David Salmon, Mazuri® Koi Feeds, Purina Mills, Inc.

In an ideal world you could store your koi feed indefinitely and it would be just as nutritious and wholesome as the day it was manufactured. But feed is made from natural ingredients, and like all natural things will eventually show the effects of time. So how long can you store your koi feed? Perhaps the best way to approach this questions is to look at the specific things that go wrong with feed as it ages.

### **MOLD**

Molds produce mycotoxins (the most well known being aflatoxin and vomitoxin) and while the mold itself is deactivated by heat or other sterilization, the toxins it leaves behind are not. Sensitivity to mycotoxins varies from animal species to species, and the exact susceptibility of koi is not known, but at some level of mycotoxin contamination your fish will get sick or die. Luckily, mold can easily be detected by smell (watch out for that mildewed sock smell), and by visual inspection (watch out for clumpy, discolored feed). Mold spores are everywhere but can only grow in a wet environment with lots of nutrients. Dry feed is a poor place for mold to grow, but wet feed is perfect.

So how long can you store feed before mold becomes a concern? The simple answer is: until your feed picks up enough moisture so that mold can grow in it. For koi feeds packed in vapor barrier packaging (usually poly lined or mylar bags), mold will probably not be a problem for a long time so long as the bag is not opened or compromised in some other way. Once the bag is opened and air gets in, how long it takes for the feed to mold depends upon the temperature and humidity of the ambient air. In a very dry climate (say Nevada) the feed will probably not mold unless it is wet by rain or standing water. In a very hot and humid climate (say Mississippi in the Summer) feed exposed to the air will probably start molding in a couple of weeks.

Refrigeration machinery removes water from the air, so storing your feed in an air conditioned or refrigerated place will help protect feed in an opened bag from moisture pickup.

Summing up: (a.) So long as the bag will keep ambient air out, don't worry. Assuming it was packaged properly other bad things will happen to your feed before mold becomes a problem. (b.) Once you open the bag, in dry cool climates you probably don't need to be concerned so long as the feed doesn't become wet. (c.) In very humid climates either use the feed within a short time after opening the bag or else store it in a cool (less than 65°F) place. Above all, examine your feed and if you see or smell mold or mildew do not use that feed.

Freezing is a good way to extend the shelf life of feed so long as you are careful about how you thaw it out. Depending on ambient temperature and humidity, as the product warms up moisture may be drawn out of the feed and condense as liquid water on the inside of the container, in effect "raining" inside the bag. This water can then wet the feed particles next to the bag wall and cause local molding where the feed touches the bag. The way to prevent this is to open the bag to let it breath when you bring it out of the freezer and, as always, smell the feed before you use it.

### **VITAMIN C**

Like primates and guinea pigs, koi need vitamin C in their diet or they will get scurvy. The most widely recognized symptom of Vit. C deficiency in fish is scoliosis and/or lordosis, although many times these symptoms are manifestations of other problems other than vitamin C (genetics, injury during development). Also, vitamin C appears to have the following beneficial effects in several kinds of fish: prevents skeletal deformities, promotes normal growth, prevents negative effects of environmental stress, aids in wound healing, lessens toxicity due to environmental contaminants, enhances the natural immunological defense mechanisms against bacterial infection. In short, koi need vitamin C to survive and all indications are that they are significantly helped by vitamin C in high doses when undergoing stress.

The problem is that vitamin C is the most unstable of vitamins and degrades quickly over time; the higher the temperature the faster it degrades. Complicating the issue is that there are many forms of vitamin C, common (unstabilized) ascorbic acid being the cheapest, most common and least stable form. There are more stable forms of vitamin C but these are also more expensive.

Purina Mills uses the L-ascorbyl-2-polyphosphate form of vitamin C in our Mazuri® Koi Diets, and warranties sufficient vitamin C for nine (9) months after production if the feed is stored at room temperature (72°F) or lower.

Be aware, though, that the shelf life of other brands of feed may be much less than this. The shelf life of vitamin C in your koi feed will depend upon (a.) How much vitamin C was initially formulated into your diet, (b.) The form of vitamin C in your diet, and (c.) Storage temperature. Your feed company should provide the answer to the first two of these questions and clearly note the date of production on each bag.

## VITAMIN A

Vitamin A is also unstable and is generally considered the bellwether nutrient for feed shelf life when vitamin C is not an issue. Even so, vitamin C degrades so much more quickly than vitamin A that it will be critical well before low vitamin A becomes a problem. On the other hand, if you use a feed with no added vitamin C and are relying on some other form of supplementation, vitamin A may become the critical nutrient to consider.

As with vitamin C, Purina Mills warranties sufficient vitamin A for nine (9) months after production if the feed is stored at room temperature (72°F) or lower.

## FAT RANCIDITY

Koi require moderate levels of fat in their diets (3% in the case of Mazuri® Platinum Koi Diet) and this fat will eventually oxidize, or go rancid, as it is exposed to oxygen. Besides making the feed much less palatable and giving off unpleasant odors, oxidation destroys fat-soluble vitamins (A,D,E,K), reduces the energy and nutritional value of added fats and oils, and reduces the protein value of animal by-products such as fish meal. Long term, the process of oxidizing fat creates free radicals in the feed, which have been linked to problems such as increased incidence of cancer and immunodeficiency. Most feed manufacturers, including Purina Mills, use anti-oxidants in their feed formulation to slow down the fat oxidation process.

Since high temperatures increase the speed of fat oxidation, you should store your feed in a cool place (72° or less) whenever possible, and at all costs avoid prolonged storage at very high temperatures (say 95°F plus). Fat oxidation virtually ceases when feed is frozen. Luckily, rancid feed has a characteristic off odor, and so can be detected and discarded.

## SUMMING UP - GUIDELINES

In all climates, keep your feed dry and regularly examine it by sight and smell to detect the presence of mold. In hot humid climates use your feed within a few weeks after opening the bag or else store it under air conditioned or refrigerated conditions.

Do not store your feed at high temperatures, and regularly smell it to detect the presence of excessive fat oxidation.

The shelf life of Mazuri® Koi Feeds is nine months from the date of manufacture when stored in dry conditions at room temperature (72°F) or less. For other brands of feed please check with the manufacturer for the amount of vitamin A and the form and amount of vitamin C in the diet. Know when your feed was manufactured before feeding it to your fish.

### AQUATIC GOLD PRODUCTS

Koi & Goldfish Food, Cichlid Food & Related Pond Products

**Bonnie J. Simon**  
"The Koi Food Lady"

Van Nuys, CA  
(Near Los Angeles, CA)

(818) 786-6275  
Please call first before sending fax.  
bonzai2004@hotmail.com  
Find me under: "Koi Food" at eBay.com



contact her, she may send a sample!



## Champion Nishikigoi

*Your Online Imported Japanese Koi and Pond Shop!*

3rd Annual ChampKoi Show

May 6th, 2006

Come join us for the following Activities  
from 9:00am - 6:00pm.

- Hobbyist Koi Judging Competition
- "Koi-Unit" 1st Annual Young Koi Show  
sponsored by Champion Nishikigoi
  - Oriental Style Buffet Lunch
  - First Champion Koi Auction
  - Raffle Prizes of Pond Products
- Koi Lecture & Awards Ceremony
  - Special Entertainment:  
Japanese Sangen and Koto Music Performance

Please download the "Koi-Unit" koi show [entry form](#) [www.champkoi.com](http://www.champkoi.com)  
and return it to us by 4/30/06

**KOI Seminar**  
**25<sup>th</sup> Annual AKCA Seminar**  
**Buffalo, New York**  
**June 22-25, 2006**

[www.AKCA.org](http://www.AKCA.org)



### *Phoenix Japanese Friendship Garden*

Located in Margaret T. Hance Park in central Phoenix, the garden is easily accessible from all parts of the Valley. This recently completed sister-city garden lies on 3.5 acres with a 0.8 acre pond in the middle. It is vegetated with more than 50 varieties of plants that can withstand the rigors of a desert environment. 1,500 tons of rock were handpicked from quarries near Jerome, Superior, Congress and Florence to line the stream beds, walking paths, lakeshore and main lake waterfall.

**Call for hours 602.256.3204**

**Koi Fish: Part II - Water Quality**  
**By Nancy Ann Mattingly**  
**From her book "Ponds, Watergardens and Koi for the Truly Inept"**

There's an old adage that goes, "if you take care of the water the fish will take care of themselves." When it comes to koi, nothing, but nothing, could be closer to the truth. If you maintain excellent water quality, barring some weird unforeseen circumstance, you will have healthy, happy, fish.

Koi are freshwater fish. Their wild ancestors lived in the freshwater lakes and rivers of Europe. They are also a tough and hardy fish. They can live comfortably in waters up to 85 degrees, and rest quietly on the bottom of the pond through winter even if their pond freezes over.

However, in man made ponds we have many, many more fish than would ever occupy the same size facility in the wild. As koi keepers we also feed our fish much more than they would ever eat in the wild. Over stocking and over feeding destroy water quality and kills koi. So what do we do to make it better?

Before you add a single fish, make sure you remove any chlorine and/or chloramines that is in the water you put in your pond. Municipalities add them to make water safe for humans to drink - they are deadly if you're a fish. 4 mg per liter of chlorine will kill a koi in as little as 8 hours! If you use water from a well, have that water tested so you know whether there can possibly be anything in it that will harm your fish. Once you are sure the water itself won't kill your koi, let's see what you need to do to create an optimal environment for them.

Don't trust your eyes - just because water is crystal clear does not mean it is healthy water for your koi. Many dissolved pollutants, including metals, ammonia, nitrite, and chlorine are invisible. While a very "dirty" looking pond may have superb water quality. On a recent pond tour I saw one that gave a whole new meaning to "mud bath." It was magnificent - behind a walled enclosure, wrapping around the front of the house, with a bridge going across the pond leading to the front entry. There were huge reeds in the water, beautiful landscaping - everything you could want. The water was very opaque and brown. This owner, however, raised show koi. How could this be? He said the mud protected the fish from the hot sun, kept them hidden from predators, and was good for their skin. Frankly, I didn't see any fish. However, when he stepped to the edge of the pond, it exploded with dozens of gorgeous fish - all vying for attention. So there.

The most important thing for your koi is to have enough oxygen in the water. Oxygen? Aren't they in water? Why do they need oxygen? Fish breathe oxygen. They need a MINIMUM of 6 mg per liter of water. There are expensive instruments that will measure the amount of oxygen in the water. Red Sea brand has an oxygen test kit that sells for around \$10. at [drfostersmith.com](http://drfostersmith.com) and [petsolutions.com](http://petsolutions.com). At your local aquarium shop the same kit goes for about \$20. The bacteria in your filter uses a tremendous amount of oxygen converting the waste products koi release. 10 grams of oxygen is used to convert 2.5 grams of ammonia into nitrate! Any plants you have in the pond also consume vast quantities of oxygen. Many fish medications drastically reduce the available amount of oxygen in the water. As the water temperature rises, making the koi more active and needing more oxygen, the available oxygen in the water decreases - a catch-22 situation is there ever was one.

Oxygen is absorbed by the water by surface contact. In order to increase the amount of oxygen, you need to increase the contact surface area. Just splashing the water around will do it - that is if you can keep it up all day and night. Otherwise, waterfalls, air stones, aerated bottom drains, and venturis are but a few of the ways to increase the amount of oxygen for your koi.

Koi are happiest with a pH somewhere between 7.5 and 8.2. What's pH? It's a measure of a water's acidity or alkalinity. For those of you who have to have the scientific explanation, it's the measure of hydrogen ions in a solution based on a logarithmic scale. Clear? Not to me... The pH in a pond varies according to the time of day. What you want to achieve is a level of stability. Test your pH. If the levels are low you may want to add an alkaline buffer to the water.

The two absolute ZERO's - ammonia and nitrite. Your test kit results should always read ZERO ammonia and ZERO nitrite! Ammonia is the main form of waste produced by your koi. it is continuously released from the koi's gills as a very dilute form of urine. Ammonia is extremely poisonous to koi! This is why you have a filter - to get ride of the stuff. (Filters are discussed in Koi: Part III - Filtration.) What your biological filter does is convert the ammonia to nitrite - which is just as poisonous to koi as ammonia - which can then be converted to nitrate. Nitrate is not harmless but can be tolerated by koi up to 100 mg per liter.

However, the lower the reading the better - try to keep it around 40 mg per liter. Over an extended period of time, nitrate will lower you koi's ability to resist disease, and it's ability to heal quickly from wounds and infections. If your tests find dangerous levels of any of the above, do DRASTIC water changes immediately! Change out the water, by 30% daily if necessary, until the number come down.

Now if you find you have an unacceptable level of ammonia, rushed out and bought a whole lot of Ammo-Lock, or Amquel, or whatever to get rid of the stuff, dumped it in your pond, re-tested, and found you still get the same reading - don't panic. Those

products do not "remove" the ammonia, they only "bind" it - turning it into a form that is not lethal. However, when you test the water with most test kits, it will show all the ammonia that is still present. That's because it is, and it will stay there until your biological filter processes it. Now the Seachem MultiTest Kit for Free and Total Ammonia is the only one I've found that will tell you how much of the bound ammonia you have, and how much of the killer "free" stuff is still there. I had a hard time finding this product in stores, but I did find it available at various web sites.

If your problem was a biological filter that is not yet up to speed, or is overloaded, it isn't much help. You can try things like Bio-Spiro, or Cycle, or any number of other products to see if you can get that biofilter going. In addition, feed your koi very little, or not at all, for a few days to reduce the amount of waste being produced - they won't starve. But your best bet is still doing those big water changes every day until the filter can process the fish load you have. You may have to do 20% water changes every day for a couple of weeks. If you don't - your fish will start to die. Sorry, but there is no miracle quick fix. Plain old ordinary salt has extra-ordinary uses for koi. However, be sure to use either kosher salt, rock salt, or freshwater aquarium salt. You do not want table salt because additives are put into it to keep it free flowing. Those additives are not good for your fish. Salt helps with a koi's osmoregulation - an important physiological process. In addition, salt helps prevent the absorption of nitrite into the fish's body. What you want is a .1% solution. That translates into 1 pound of salt for each 100 gallons of water. You can use a higher concentration as a bath to treat some diseases, but as a pond additive, .1% is enough. There are instruments that measure the amount of salt in the water, but for our purposes, a simple, inexpensive test kit will be just fine. Be sure to dissolve the salt before putting it into the pond! Koi are very curious and will poke around the salt. Those salt crystals can cause severe burns to their skin - severe enough to kill.

Lastly, it is absolutely necessary to change out 10 - 20% of the water in your pond every week. There is just a lot of nasty gunk that accumulates in the water over time - debris that fall in, dead fish skin and scales, dead bugs, mucus, rotting plant matter, bits of uneaten food, and any number of other pollutants that are not removed by your filter. By changing out 10 - 20% of the water each week, even if your testing shows "perfect water," you insure that these other contaminants are reduced.

You also get another "reward" for doing water changes - bigger koi! How so? Koi produce a hormone that regulates their growth. This hormone accumulates in the water. The fish can sense how much of it is present. The more there is of this hormone, the slower your koi will grow. It's their way of figuring out how much room they have. By changing the water, therefore diluting the amount of the hormone, you fool your guys into thinking they have a bigger pond! Clever, huh?

Remember koi do not like drastic changes to their world. So don't change out more than 10% at any given time. If you like doing this - change 5% - 10% of the water each day. That way you can end up replacing 35% to 70% of your water in a single week. Your koi will love you for it.

Sorry, but adding a little water because there has been some evaporation does not count as a water change. Evaporation does not get rid of any of the pollutants - they just become more concentrated in the water that remains. You have to actually remove water. And remember the water you put back in should have the chlorine and chloramines removed, the proper proportion of salt added, etc. And no, not changing the water for three weeks, then doing a 30% is not wonderful, but it's better than nothing.

All this may seem a lot to deal with - but it'll become second nature in no time. When you first set up your pond you may want to test the water 2 to 3 times a week to make sure nothing is going out of whack real fast. After that, once or twice a week will do just fine. And you'll find those test kits last for quite a while.

So take care of that water, and let your fish do their best to take care of themselves.

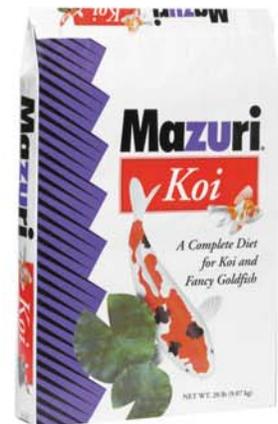
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**TO:**

**SPECIAL EVENTS**

**April 15th Club Meeting**  
**Mazuri Nutrntion**

**May 6<sup>th</sup> Champion Koi Show**

**May 19-21 Utah Koi Show and Seminar**

**25th Annual AKCA Seminar**  
**Buffalo, New York**  
**June 22 -25, 2006**

**Home & Garden Show**  
**SEPTEMBER 22, 23, 24 2006**

