

# THE BEE CAUSE

## President's Comments

Presidents Comments	1
February 10 <sup>th</sup> Minutes	2
Beekeeper Fined	3
Testing for Hygienic Behavior	4
Bee Breeding, Selection and Instrumental Insemination	5,6 &7
Classifieds	7&8



### Special Points of interest:

**PROGRAM:** The program for March will be a lecture on the Essential Steps of Spring Management of Bees presented by Mr. Rheal Lafreniere, the Provincial Apiarist.

**NEXT MEETING:** Date is March 9th ,7:30 pm @ the River Heights Community Center. Located at 1370 Grosvenor street.

The Canadian Honey Council Meeting is now a historical memory for many of the local and out of town beekeepers. It was a marvelous week of discussion, presentations, and often most interesting of all, the private discussions in the hallways or the back of the conference rooms with beekeepers from across the country. Several key points that developed from the CHC meeting that I feel need more attention are: a) An exact science based definition from the Federal Government of what Honey Is; b) A Honey labeling law that states the proportion of Sources and Blends of Honey by country so that the consumer is informed; c) An indication from the Federal Government towards a timely decision on the safe importation of only queens from continental USA; d) An awareness of our need to be aware of the seemingly growing AFB problem and taking action to control its spread; e) A realization that IPA management techniques are a necessity in modern beekeeping; g) That we need to financially support and encourage the development of better, stronger colonies of bees thru a planned queen rearing program; h) That by working together the beekeepers from across the country can continue to produce and market some of the best quality Honey in the world.

It was great to see so many new faces at our February meeting. There is a growing interest in beekeeping as indicated by the large number of people taking the University of Manitoba night course. We encourage and invite them to attend our monthly meetings and meet members of RRAA.

The program for March which is directed towards those Essential Steps of Spring Management of Bees will be presented by Mr. Rheal Lafreniere, the Provincial Apiarist. The right things done early will pay off well in June and July. If people are planning to make pollen paddies for their hives, be sure that you are using pollen that has been irradiated to kill off any AFB spores. The Honey Co-op is planning to bring in this type of pollen in the near future. Raffle Items for our fundraising part of our beekeeper meetings are needed. Bring along something For the raffle table that would be of interest to beekeepers.

I had a look at my own indoor bees last week and they seem to be doing well, except those that were light going inside in October. Some are taking syrup others with syrup available were not strong enough to move it down and have expired. It is always disappointing to have a hive do well for 14 weeks, and then just not be able to continue.

With the increasing hours of daylight it is time to consider doing some equipment renewal or maintenance. There are always boxes, or frames to repair, or clean up your queen excluders by letting them chill outside, and scraping off the wax and propolis. Let us hope for another early spring.

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## Red River Apiarists' Association Minutes of the General Meeting Feb. 10, 2004

- Charles Polcyn opened the meeting and welcomed several new members and guests.

**Liability Insurance:** - Charles informed our members that a membership in the RRAA includes coverage in a joint liability policy maintained by the Manitoba Beekeepers' Assoc.

**Minutes:** - Ron Rudiak read minutes from the January meeting, A motion to accept the minutes was made by Emil Rekrut and seconded by Walter Wright. Carried

**Financial Report:** - Because the RRAA has experienced difficulty in maintaining services to our members it was decided, at the executive meeting, to raise the membership dues from \$20.00 to \$25.00 beginning April 1st, 2004.

**General Discussion:** - Several members of the RRAA expressed concern regarding the availability of mated queens this spring for increase and re-queening colonies with failing queens. Charles noted that New Zealand and Australia, themselves, need more colonies of bees to produce honey due to the drought in Australia and the high prices now paid for bulk honey. Possibly local queen producers may be able to have Manitoba raised queen cells for sale in time for late May hive splitting or produce mated queens for the first part of June.

Because inventories are full, honey prices have decreased somewhat. The price currently being paid for high quality bulk honey is in the range of \$1.50 to \$1.65 / lb.

- Many members saw Lindor Reynolds' article in the Winnipeg Free Press about Manitoba's most senior members of the beekeeping community, Ruth Vane (98 years) and her brother Carol Clark (103). They were both recipients of the S.A. Bedford Centennial Memorial Beekeeping Award at the 100th MBA Convention in Winnipeg. They reside in Wawanesa, Manitoba.

- Anne Donkin, a senior RRAA member has also celebrated her 103rd birthday.

**Program:** - Ron Rudiak gave a presentation on the activities and current projects of the Canadian Honey Council. Food safety has become a priority in all agricultural industries. The honey industry has been working to establish new food safety practices to provide traceability.

- Charles Polcyn and Jim Campbell detailed some of the presentations and events which took place at the 100th MBA Convention at the Ft. Gary Hotel in Winnipeg.

Among the items discussed were:

- Cross border honey marketing and the Bioterrorism Act
- Is Chinese honey entering Canada as Ultra filtered Honey? Should this product be re-named?
- Feeding natural pollen and pollen substitutes in the Spring for rapid brood development
- West Nile Virus may require mosquito spraying with malathion. This could take place if there is a severe outbreak of the disease in the human population
- Honey labeling is often unclear and does not advise the customer on the percentage amounts used in a blend of offshore honey.

## Red River Apiarists' Association Minutes of the Executive Meeting - Jan. 21, 2004

- The **executive meeting** of the RRAA was held at Robin's Doughnuts (corner of Fermor & Lagimodiere) with Charles Polcyn, Rhéal Lafrenière, Dennis Ross, Dan Lecocq, Rhéal Lafrenière, Jim Campbell and Ron Rudiak present. Charles called the meeting to order at 5:30 PM.

- **Honorary List and convention:** Moved by Ron and seconded by Dennis Ross that we place Don Dixon on the RRAA Honorary Member list. Carried. Don is also to be provided with a certificate of recognition or plaque.

- Moved by Jim and seconded by Dennis that we spend up to \$150.00 for a plaque for Don Dixon and brooch for Jamie in appreciation for 25 years of support for the RRAA. Carried.

- Moved by Jim and seconded by Dennis that we spend \$200 on our share of the anniversary cake for the Centennial celebration at the MBA Convention. Carried.

- **Financial Report:** Dennis Ross reported that we have \$2072.00 in our account at the Assiniboine Credit Union in St. Vital. At present we have 55 members.

- Moved by Dennis and seconded by Dan that we increase yearly dues, beginning this year, to \$25 from \$20 starting on April 1st.

- Moved by Jim and seconded by Ron that we add Charles Polcyn's name to the cheque signing authority at the Assiniboine Credit Union. Carried.

- **Anniversary Evening Celebration:** A discussion took place regarding the evenings activities celebrating the 100th anniversary of the MBA.

- **Meeting Room:** Dennis will confirm meeting room reservations with the River Heights Community Club for 2004.

### - Meeting Topics:

- February 10, 2004 Convention Report, CHC report, Research Symposium Report (IPM).

- March 9: Spring management, review of Bee Act, 2004 drug feeding regulations.

- April 13: Splitting hives and making nucs or Rob Currie on the indoor flight room.

- **Basic Beekeeping Course:** The basic beekeeping course starts on February 4th at the U of M and runs for 10 Wednesdays. The cost is \$75.00. Call 945-3861 to register.

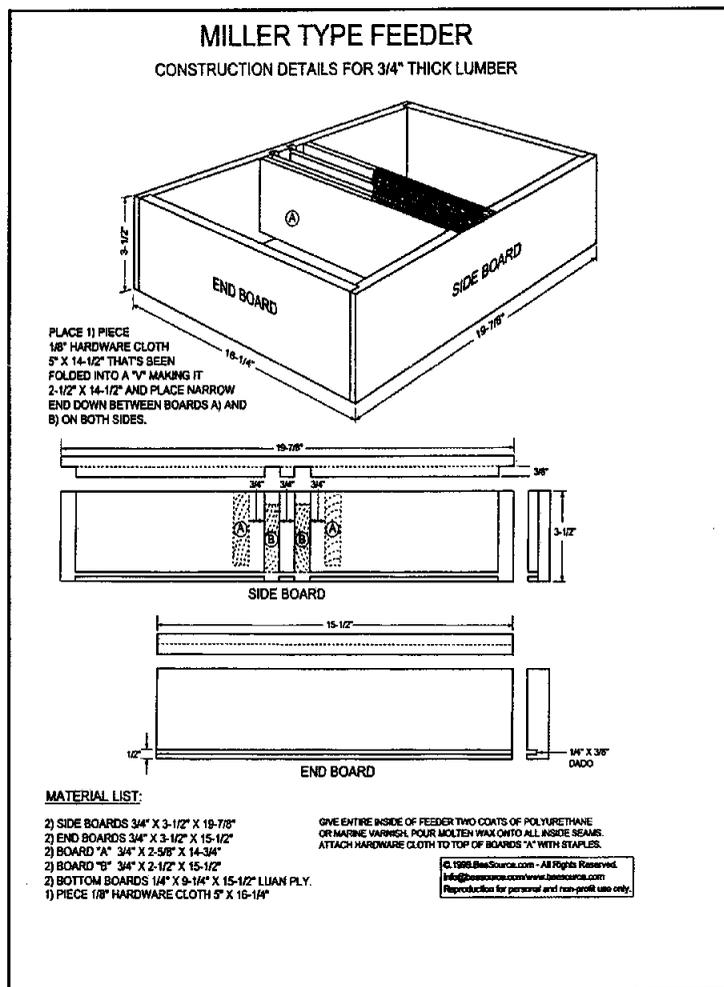
Meeting adjourned at 7:00  
Ron Rudiak, Secretary

## Beekeeper fined \$6,000 for selling honey containing foreign sugar

Markos Héliotis, an Ontario beekeeper operating under the name J & M Héliotis Apiaries, pleaded guilty to selling honey containing sugar foreign to natural honey. During an inspection, the Canadian Food Inspection Agency discovered that the honey contained sugar from sugar cane and from corn.

The beekeeper thereby contravened the composition standards of the Food and Drug Regulations and subsection 5(1) of the *Food and Drug Act*, by creating a false impression regarding the character and composition of the product.

On December 2, 2003, Mr. Justice Claude Pinar, of the Quebec Court, fined the accused \$6,000 on one count.



## Testing for Hygienic Behavior in Honey Bees by Adony Melathopoulos

**. Background:** The majority of beekeepers in Alberta have bees with genetic traits that make them resistant to American foulbrood (AFB). The problem is that the number of colonies with resistance traits is at too low a level to provide significant protection. How can AFB resistance be brought to levels high enough

that beekeepers can reduce their use of antibiotic? Addressing this question is the focus of a cooperative study between Alberta beekeepers and Agriculture and Agri-Food Canada. Hygienic behavior is the most



studied genetically determined character honey bees carry that make them resistant to AFB. Colonies carrying the traits that make up hygienic behavior detect early AFB infections, uncap the cells and then eat up the larvae before the disease has a chance to produce spores. Hygienic behavior stops AFB in the same way that ploughing a field stops weeds; it stops the AFB before it can form seeds, or more precisely, spores.

The objective of the project underway in Alberta is to determine the best ways to establish hygienic behavior among beekeeping operations. The study will

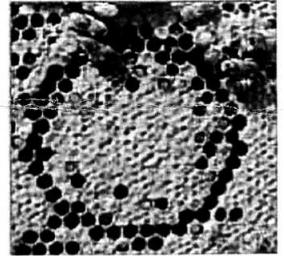
compare establishing the character by two methods; 1) introducing queen cells from hygienic selected stock into Peace River nucs for open-mating or 2) introducing mated selected queens from iso-



lated-mated with hygienic selected drones. The change in hygienic behavior among successive generations will be compared between open-mated queens and close-mated queens. The project will provide beekeepers with guidelines on how to best establish the character within their operations. Early results suggest the character is present at variable levels among Alberta beekeepers and may be present among anywhere from 5-50% of breeders.

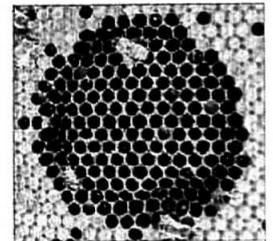
Although the results of the experiment are still in the early stages, most beekeepers can begin testing their breeder stock on their own.

**The Method:** Testing for hygienic behavior involves freezing a patch of pupated sealed brood with liquid nitrogen. Liquid nitrogen is poured onto frames, freezing and killing the brood, and the amount of brood



removed in a 48-hour period is recorded (Figure 1). The liquid nitrogen is confined to a specific spot on the brood using a tin soup can opened on both ends [2-3" diameter ´ 8-15" tall] (Figure 2). The can is driven through the brood into the mid-rib of the frame. The rim of the can must be

sawed off and filed to provide a good seal between the frame and the can. A good seal is essential in preventing the leakage of liquid ni-



trogen from the selected area. The patches of brood selected for the test should not contain more than 10-12 empty cells. Approximately 250-300ml (9-10 ounces) of liquid nitrogen are poured on the brood. The can will require approximately 5 minutes to thaw before it can be removed and the frame replaced to the colony.

Liquid nitrogen has a boiling point of almost -200°C and care must be taken to prevent frost bite. Protective clothing including heavy gloves, boots and safety glasses should be worn (Figure 3). The liquid nitrogen must be stored in a special tank. Liquid nitrogen and used 20 liter tanks (holds enough liquid nitrogen to test 50-75 hives) are available for from companies supplying artificial insemination services for livestock. Two sources are Westgen in Armstrong, BC (call Roy at 604-530-1141) and Alberta Breeders Service (call Neil at 403 507 8771).

## ***Bee Breeding, Selection and Instrumental Insemination***

by Ron Rudiak

(from Sue Cobey's presentation - 2004 Manitoba Beekeepers' Assoc. Convention in Winnipeg)

To provide breeder stock to the industry, Susan Cobey runs the New World Carniolan Closed Breeding Population Program at the Ohio State University.

Susan Cobey's breeding program is simple and straight forward using controlled mating, and artificial insemination. Also important are methods of selection and procedures for measuring results to ensure that genetic differences and not environmental influences are occurring.



In a breeding system it is important to note that bees have an inherent inbreeding sensitivity. Breeders need to avoid problems of inbreeding by using several different ways to minimize this occurrence. We are not dealing with individuals but rather the hive is a complex biological unit, a complex social unit or superorganism. These are very flexible and dynamic populations, as a result of the queen multiple mating and because honey bee colonies are strongly influenced by their environment. This makes selection somewhat more difficult.

A solid worker brood pattern indicates a properly mated queen and a prospering colony. Normally, a virgin queen mates several times with genetically diverse drones which limits inbreeding. This complex social unit may consist of 10 to 20 different subfamilies represented by the different drones with which the queen mated. Within the colony there are many bees performing specialized functions with other bees progressing to other functions depending on the needs of the colony or the environment. Sometimes this progression may occur very quickly. For instance if you were to move a colony in the middle of the day a lot of the

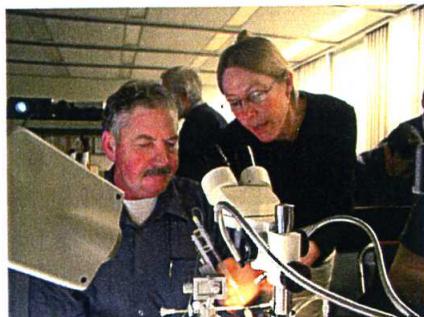
field bees would be left behind. Very quickly other bees change their behaviour pattern to gather nectar. In honeybees one gene determines sex. Because of variations, different forms (sex alleles) are expressed. It is important that there are several different sex alleles in the population which equates to a solid brood pattern. If the queen mates with drones that are closely related this often results in spotty brood patterns. In a breeding program we want uniformity of traits but at the same time its necessary to have the genetic diversity necessary to maintain the complexity essential to adapt and develop a strong, healthy colony.

Besides genetics, the environment puts pressure on the colony to perform in certain ways. As an example, consider hygienic behaviour. In the Spring when there are a lot young bees produced due to an abundance of pollen and nectar coming in everything looks more hygienic. Later in the season, during a time of dearth, there is a lot of empty comb space and not as much stimulus to clean cells of debris and disease organisms, making the hive appear less hygienic.

Environment influences behavior, genetics also influences behavior. Even within the colony different subgroups differ in their behaviour. As well there is division of labor within the colony, young bees will clean cells, slightly older bees feed larvae and older bees turn into nectar gatherers, guarding the hive etc. Some bees have a propensity for collecting pollen. This can be useful if collecting pollen is your goal but by selectively breeding only for pollen collection it is possible to develop colonies that will collapse because they neglect to bring in enough nectar to sustain themselves. A bee hive is a complex and interactive society. It is necessary to maintain that complexity and diversity but still have some uniformity in the population. When more diversity exists within a colony those bees are more able to deal with changes in the environment, weather conditions, disease and pest problems. Possibly there are some rare genes that may confer resistance, selection pressure may favor these, increasing the gene frequency and expression of this ability.

Natural selection, over time, is a good selection tool, probably one of the best. Routinely, beekeepers have put more selection pressure onto diseases and mites causing them to develop resistance against the chemicals in use. What this does is maintain susceptible bees and produce resistant pests and diseases. Winter is a wonderful selection tool, it really sorts out the bees that are healthy and eliminates those colonies which have tracheal mites or nosema. Surprisingly, eighteen genetic forms of varroa have been identified, each form is specific to a particular bee. Out of these, only two affect *Apis mellifera*. Of these two, the Korean / Russian type, which was first introduced into North America, is more virulent. The Japan / Thailand type which was first found on Africanized bees in South America, is less troublesome. The point is that varroa, too, is also complex and changing. Whatever selection pressure that we are putting on the bees, we are also placing on the mites. It is a kind of balancing act to determine the point at which pest resistance develops. In the use of routine medication we have been placing this pressure in the wrong place. We are maintaining susceptible bees while weakening the bees resistance to mites. The continuing use of chemicals selects mites which are resistant to chemical treatments while creating a dependency cycle. For instance, we first experienced mite resistance to fluvalinate and switched our treatments to coumaphos. Today, we are seeing mite resistance to both of these chemicals. Too, while foulbrood has not been an issue for a long time, now we are seeing AFB which is resistant to terramycin. We are putting the pressure in the wrong places and need to work to turn that around.

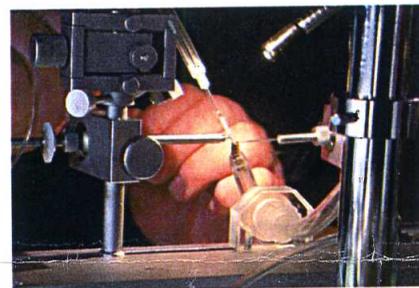
One characteristic of resistance that can be selected is grooming behaviour. This is a big factor in varroa and tracheal mite reduction which is seen in *Apis Cerana* and



Africanized bees. Another desirable factor is hygienic behaviour. These mechanisms are general traits in the population but may occur with such low frequency that we may not notice their expression. If we put pressure on a bee population, over time we will begin to see expression of these desirable traits. Suppressed mite reproduction in honey bees has been found only

recently. Though it is not really understood how SMR works, in its expression female mites that enter cells of developing larvae will not be able to reproduce. If a European colony is given several frames of Africanized worker brood, varroa mites will select cells from the European stock in which to reproduce. Preference of European brood over the Africanized brood may be due to olfactory cues or pheromones. This may become yet another tool which we can use to suppress mite populations.

Other things, as well, may be used to reduce mite populations such as screened bottoms where the mites get a one-way trip out of the bee colony when they fall (and cannot return). Placed upon a bottom board with a slide-out tray, screens are a very good diagnostic tool for determining mite levels and observing colony activity. Among the fallen mites, one can sometimes observe adult mites, immature mites, legless mites that have been removed by the bees or mites with bodies damaged by biting. These damaged mites are an indication that the bees are dealing with the mites at some level. By looking for mite damage and selecting from those colonies in a breeding program, we can increase the frequency of expression of these characteristics.

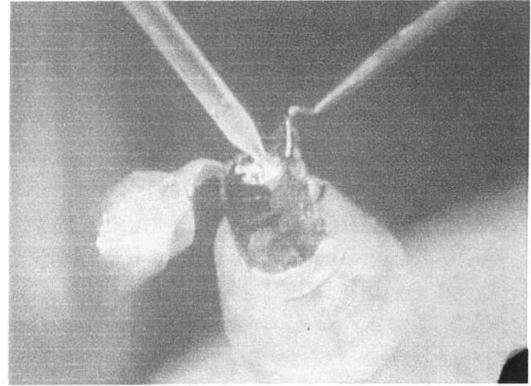


Commercially, a system must be simple, and one must be able to process a large number of colonies quickly and efficiently to scan the population and pull out the best performers. By observing the whole bee population Sue Cobey is not dependent on a particular queen. She uses virgin queens and drones from populations which are evaluated yearly. The top third of the colonies become breeders from which virgins and drones are raised. When required, those drones are used in semen collection for artificially inseminating virgin queens. The test population she uses is around 300 colonies in which only the top third will be selected. This is a flexible system for making bee stock improvements. In bee breeding the program developed for evaluation and

improvement is as important as the bee stock. Selection pressure is placed upon the population used in order to increase the frequency of the traits which are desired. However, it is not unusual to see fluctuations and ups and downs in the results. Susan uses controlled mating for much of her work in stock improvement.

Sue Cobey selects for brood viability, temperament, colony development, honey production, pollen collection and disease resistance. Color of the bees is not important. She suggests that breeders select traits which are important to them such as honey production, wintering ability, etc. and select for those characteristics. Colonies in her bee breeding program are evaluated in the spring for their strength and viability, each trait is given 5 points. The maximum initial score is 20. The colonies are further evaluated for mite and disease resistance and later a weight gain evaluation is made to determine colony suitability for breeding. Tracheal mite counts are made with the colonies going into Winter and in early Spring. These are critical times when tracheal mite populations have the potential for doing the most damage. In May and again in late Summer a hygienic test is performed using liquid nitrogen to freeze small patches of brood. These sections of frozen brood are placed back in the colony and observed again after 24 hours to look for brood removal indicating the level of hygienic activity. Varroa mite population is observed throughout the year by using an uncapping fork and looking at uncapped drone brood during the Summer and by doing a mite count using sticky boards placed below the colonies in the Fall. Chemical treatments are currently used for varroa control but the goal is to eventually do away with chemicals as improvements develop in the bee population. The bees used in the breeding program are isolated from any uncontrolled introduction of bee stock. All new bee stock is first evaluated in a separate location before it can be used in Susan's breeding selection program. New stock can provide drones to add sex alleles and keep the gene pool diverse while the use of instrumental insemination protects the ongoing breeding program from unwanted matings.

Selection for several traits within a closed population breeding program is a slow progressive process. As more characteristics become important to the breeder, these can be added. Maintaining selection pressure on the bee population over time is the key is-



sue in stock improvement. An integrated pest management program is also important to slow down or eliminate chemical treatments while still maintaining selection pressure on the bee population. If beekeepers can treat once per year with chemicals that are less harmful (and likely more marginal) there will be a benefit to the selection process. Today the chemicals are becoming as troublesome as the pests that they are supposed to control.

Looking toward the future, integrated pest management is necessary to help our bees deal with pests and diseases. Controlled mating and artificial insemination will continue to be useful tools for stock improvement. We should be able to enjoy our work with strong, gentle and resistant colonies brought about by stock improvement. Selection works, it's that simple.

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## CLASSIFIEDS

**For Sale:** 15 New (1 liter) honey containers, 3 frame centrifugal extractor, hand driven, non-reversing. Excellent Condition.

**Ph Bill Orr @ 896-6265**

**Wanted:** Honey Supers with drawn comb.

**Phone Dan Lecocq @ 255-1043**

# CLASSIFIEDS

(Free for members.)

**For sale:** 6 Ross Rounds in good condition  
 Wanted: Solar Wax melter large enough to hold queen excluders  
 Call :Doug Henry @ 757-4694  
 or email dhenry@skyweb.ca

- **NEW**-Pine Boards: (7/8"x 12" x 12') \$1.60 per LFT
- **NEW**-Pine Boards clear (no knots): maximum 4' lengths (7/8" x 12") \$ 3.60/ linear ft. (will cut to size).
- **NEW-Inner Covers:** excellent for winter & summer, all are 3/8 " plywood sitting in a 7/8" x 7/8" pine lumber frame, (will last 100 years if not abused). Only \$ 7.25.
- **NEW-Hive Top Covers:** Your bees will appreciate this winter & summer and they will reward you for it. Outer frame interlocking corners, hot dipped for durability, topped off with 3/8" plywood & 1" Styrofoam insulation in a 2" deep metal cover. Only \$ 35.00
- **USED-** Nuc Box (1)- 4 compartment 3 standard frame- over winters nucs excellent for indoors \$100.00  
 Call: Ted Scheuneman 338-6066 ( for all above items)

**For Sale** Bees- Over wintered or New Nucs; Super Boxes with or without drawn comb, Bee Suits and Veils, Frame Making Parts, Metal Cover Lids, Nuc Boxes, Wax Foundation, Honey Storage Pails & Barrels, Other Beekeeping Equipment.  
 Call Charles Polcyn @ 284-7064

**NUCS FOR SALE.** Excellent provincial apiarist inspection records (inspection report is available) Nucs sold by the frame or box & with or without a queen.  
 Ph. Ray Kozak @ 204-242-2819, LaRiviere, MB

**For Sale:** Approx. 200 bottom boards \$3 each; Hive covers with metal tops (need maintenance) \$4 each; 67 Queen excluders with wooden frames \$2.50 each; 50 polystyrene bee max hives - deep hive body with hive covers \$29 each. Call Honey Rock Apiaries (204)388-5164 evenings.

**Important Notice:** Annual Membership dues will be increasing to \$25.00. Get your renewal done before March 31 /2004 and save yourself \$5.00.



**RED RIVER APIARIST'S ASSOCIATION  
 2004 MEMBERSHIP APPLICATION/RENEWAL FORM**

*Please complete and mail with your cheque, for \$20.00, payable to: The Red River Apiarists' Association*

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_ **POSTAL CODE:** \_\_\_\_\_

**CITY:** \_\_\_\_\_ **PROVINCE:** \_\_\_\_\_ **PHONE:** \_\_\_\_\_

**NEW MEMBER [ ] RENEWAL [ ]**

**Mail to: Red River Apiarists' Association**  
**Dennis Ross, Treasurer,**  
**Group 40, Box 20, RR2**  
**Lorette, MB R0A 0Y0`**