

The Russians Are Coming (Actually They Are Here) - By Joe Lewis

The Beginning, the USDA, and Some Bee Import History: (for U.S. beekeepers) - Russian Honeybee stocks (a sub-species of the European honeybee, *apis mellifera*) originated from the far eastern Primorsky region of Russia, near Vladivostok (close to Japan, about 6000 miles east of Moscow). These bees were imported into the United States in 1997 by Dr. Tom Rinderer at the USDA-ARS and were researched, tested and released to the beekeeping industry beginning in 1999 and 2000. Previous importations of honeybee stocks took place over a very wide period of time in the late 1800s and early 1900s, so the Russian bee imports are, as a comparison, a quite recent introduction. The first stocks of Northern European (Black) honeybees came over to North America in the late 1580s with the Spanish colonists. In the early 1600s black bees came with the English colonists. Legend has it that in colonial North America the natives had advanced knowledge of the westward movement of settlers as their honeybees arrived first! A major importation of new bee stock was with the Italians beginning in 1859. Over the subsequent years many other sub-species were imported (up until the 1921 ban on honeybee imports into the U.S.). And of course the Africanized bees arrived in the southern U.S. beginning in 1990, but this was accidental and not on purpose. The Africanized bees were released during an experiment in Brazil in 1957 and they hybridized and moved rapidly north.

Russian Bees May Be Better Survivors - Many readers are familiar with Italians, Caucasians, Carniolans and may remember specialty lines such as the Weaver's Midnite and Starline bees (Caucasian-Italian hybrids), Buckfast, "Minnesota Hygienic" (a type of Italian bee), "New World Carniolans", or Purdue "Ankle Biters". Many of these are good bees but may not compare with the Russians in their natural ability to deal with varroa. This is significant since varroa mites are one of the main causes of bee losses year after year (since Varroa arrived in the US in 1987). Russians bees appear to be survivors. They have had a couple of hundred years advanced experience dealing with mites. Multiple lines of Russian breeder queens have been carefully selected and maintained using a system of color coding, with new "lines" being release and made available for commercial production. The lines of Russian bees are maintained by members of the Russian Queen Breeders Association.



Russians Act Differently - Ask any beekeeper who has been around for a while and he or she will tell you that not only does each sub-species of bee sometimes act differently, but there is often a difference from hive to hive from the same sub-species. In the past, many of us have acquired the management skills needed to care for Italian bees. Most of the current beekeeping literature has been written for the management of Italian bees. Most of our base of management information in the beekeeping domain of the United States has been with Italian bees. But now after more than 150 years of “praising and raising” Italian bees, we need to take some time to study the Russians bees, and recognize how they are different. We have to learn new beekeeping management principles so we can better take care of them (and they can take care of us!). Experience with Russians shows them to be about as gentle and easy to handle as Carniolans, Caucasians, and Italians. Here are some details on how to ‘*differently*’ manage your Russian hives:

Honey - If you have not tried Russians and are concerned about honey production, don’t let this be a huge factor in choosing your bees. Many beekeepers have found honey production from Russians to be at or near to that of the other bees. On the other hand some commercial producers say their per hive honey production average for Russians is lower than their other bees (at a rate of about a super per hive). My thoughts are, yes ... perhaps, but my Russian bees are still alive. The main reason most commercial producers and professional pollinators can’t use Russians is because the Russians bees won’t or can’t overwinter large clusters or make the early brood buildup in time to go into California almonds in February and March. (Almond growers won’t pay as much for a hive with 4 full frames of bees, as for one with 8 full frames of bees. This pollination standard.) And almond pollination is where the money is and those guys have to follow the money trail. Luckily the hobbyists and sideliners can follow the path to more natural, healthy, chemical-free bees by using Russian bees! And if we do have to treat, we can use “softer” chemicals such as thymol, the ingredient in products such as Apilife VAR or less severe treatments using formic acid and oxalic acid.

Smaller Clusters - Russian bees will not build up their populations until pollen is available and they shut down brood rearing when pollen and nectar is scarce. Italian bees and to a lesser extent, Carniolans maintain a larger brood area and worker populations regardless of environmental conditions. This can result in more bees than the hive can maintain and may lead Italian colonies to early winter starvation. Perhaps this also explains the Italian bee’s tendency for robbing in late summer. Russians will carry a much smaller cluster through the winter, but they will explode as soon as pollen and nectar are available. Researchers have noted that winter bees from Russian hives live a little longer than the winter bees of other subspecies. This may also give them a slight advantage.

Brood Shut Down - On the Eastern Coastal Plains, Broadleaf Forest Eco Region of the US the nectar dearth tends to run from Mid-June into late August, so this is a long time for a colony to live on its reserves. When a local or regional summer or fall drought or nectar dearth kicks in, the Russians shrink down the cluster. As Steven Coy from the Russian Bee Breeders Association says so succinctly, “Russian bees are more responsive to environmental conditions than Italian bees.” Do not expect to see big brood patterns all summer long. You won’t, if there is no nectar or pollen coming in. Also, just because you don’t see brood it would be erroneous to conclude

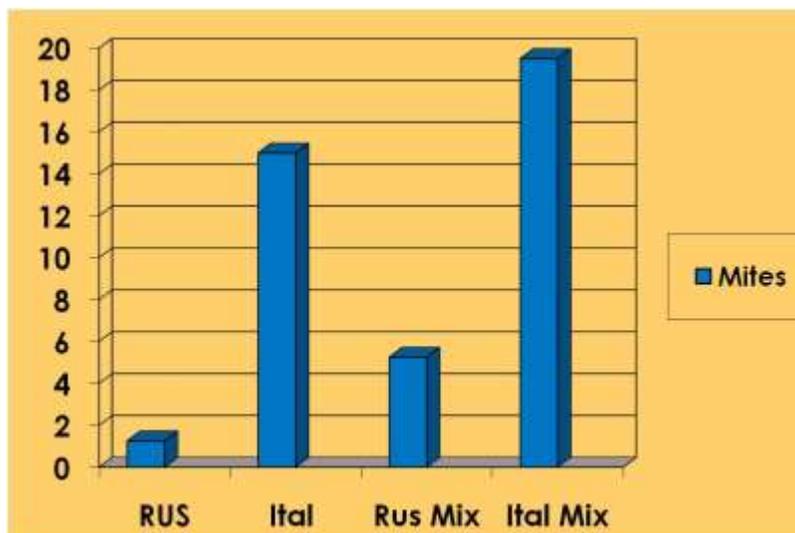
that your queen is lost. She may be healthy and still in residence, just taking a forced “vacation” from laying eggs or having her eggs eaten by her workers. One summer in late July or early August a bee colleague called me to ask to buy a queen. I told him to come on over and I would get a queen for him from a mating hive. Upon arrival I questioned him a bit more. He said his hive must be queenless because it had no brood. I asked him what kind of bees were in that hive. He said Russian. I said, there is probably nothing wrong with your queen, you just don’t see her or any larva or brood. He went back home and on re-inspection confirmed that the Russian queen was in fact present. This is normal during a dearth. Remember, all beekeeping is local (and regional) so know your local conditions and know that the actions of Russian bees will be based on those conditions.

How to Re-Queen Russian – It is easier to re-queen a hive using a queen from the same genetic line as the target hive. But often this is not an option. Re-queening can be a challenge and may require different techniques than we are used to. Some beekeepers have used traditional queen introduction methods and lost their expensive Russian queens on non-Russian hives. If you are re-queening Russian, you could split the hive into two portions (upper and lower) and separate the boxes with a double screen board, adding an upper entrance. This permits the odors to comingle, but keeps the bees from interacting with each other. Keep the old queen in the lower portion. Put the caged Russian queen in the upper portion. Double-check. No, triple check to make sure there is not a second queen in the hive in that upper portion! Some reports say that at certain times of the year (especially spring) 10-20% of the hives may temporarily have two queens (mother & daughter). Do not give the bees access to the candy hole in the Russian queen’s holding cage. Keep it blocked, protected or covered. If you are using a JZ-BZ plastic cage, do not open the get acquainted window. Using this two-box arrangement the older forager bees will go out and re-enter the lower hive. The heat from the brood nest in the lower portion will help heat the upper portion if it is cool outside. Do not put unsealed brood up in the upper portion. Use only sealed brood up there. If possible only use sealed brood up there that has been previously aged above an excluder for 5 days. Newly hatched bees will have no allegiance to the old queen, so they are likely to take good care of your new queen. After 10 days, the Russian queen can be released from her cage. Let her lay eggs for about four weeks. If she continues to lay eggs and is being tended by the workers, she will be OK. At this point the old queen from below can be removed, and you can remove the double screen, again comingling all bees back into one colony. If by some accident the colony does not accept the Russian queen when you release her (but before combining the hives), you still have your old queen to carry on and the hive will not be lost. This procedure (some 40 days long) is not as important when re-queening a Russian hive with a Russian queen, but you should still be careful anytime you are re-queening.

Hybrids - Some Russian queens arriving with a “Russian” package may be mated with non-Russian drones. (Ask your supplier if the breeder uses dedicated Russian mating and drone yards.) Research has shown that first generation hybrids (F1s) are still fairly resistant to mites. Second generation hybrids (technically known as F2s) and subsequent generations may not have the same mite resistance and could lose some of the characteristics originally displayed. For that reason you may want to make ask that your Russian queens be marked. Then you will have the evidence if you see an unmarked queen in your hive. A note on marking your own: I have had hives react to a newly marked Russian queen by immediate supercedure! If you mark a queen

that is already in a hive, make sure the paint is fully dried or even put the queen back in a cage for a few days for her own protection. Over the years I have visited the package producers at Hardemans Apiaries in Mt. Vernon, Georgia where a lot of Eastern Seaboard bees originate. The Russian mating yards they use concentrate a strong genetic pool for bee breeding. Therefore even though the shook packages of bees are Italians, the Russian queens and their drone offspring are near purebred.

Mixed Bee Yards (Russians & Other Breeds) - Beginners tend to think, “Well, I will try a little of this and a little of that and see what works.” Experience shows that the advantages of varroa resistant Russian colonies will be negated if non-resistant bees are nearby. There are several reasons this happens. First, drones and other drifters will carry varroa between hives. The larger the bee yard, the more there is mixing of bees from different colonies. Secondly, when a non-resistant hive fails, it “dumps” varroa on the other hives. The pressure from the large influx of varroa may not be able to be handled by your Russians. If you are close to other beekeepers and they can’t be convinced to keep Russian bees, your bees will always be affected by the level of mite in their bees (good or bad). Here is a chart from the Russian Bee Breeders Association website depicting varroa loads in bee yards with various combinations of bee breeds. The numbers below reflect the number of varroa mites per 100 bees sampled in pure and mixed bee yards:



This chart is used with the permission of the Russian Bee Breeders Association

Queen Cells - Russian colonies usually maintain queen cells throughout the brood-rearing season. This is quite different from Italian colonies. In those when you see queen cells you may suspect a swarm is imminent. Using their natural reproductive instincts, the bees are trying to reduce overcrowding by establishing a new colony or they may supersede (kill and replace) the resident queen. While this is also true with Russians, the Russian colonies often maintain extra queen cells, and release these queens periodically (every day or every two days) resulting in multiple swarms. Sometimes during a nectar flow you may hear virgin queens piping or quacking from within their cells. They are being held as captive virgins. Virgin captives are not described

often in beekeeping literature, but Tom Seeley mentions them very briefly in his book, *Honeybee Democracy*. What I have observed is the Russian virgin queens (sometimes numbering 10 to 20) try to release themselves, and as they cut a hole in the bottom of their cell the nurse bees presumably feed them through the hole, then reseal the hole to keep them in "prison". On several occasions I have opened Russian colonies early in the main nectar flow and raised an upper brood box that had lots of queen cells on the lower part of the frames. Many of the cells were partially attached to the lower box and they broke apart releasing virgin queens that were being held captive. Then they run all over the frames quacking as they go! Later in the season the Russians may create queen cells but tear down the cells before they fully develop (and start new ones.) If you keep some Italian hives as a constant source of brood through the bee season, and have Russian hives as a constant source of queen cells, you can make nucs for a very long time.

Empty Cells - If you see a fully developed capped queen cell, don't assume it always contains a developing queen. Sometimes the cell can be empty and the bottom door has been swung open, then re-closed or even re-sealed and it just appears to be a capped cell. A few years ago I gave a friend a ripe Russian queen cell and a nuc to put it in. He checked it a few days later and thought the virgin had not emerged. Later, his more careful inspection revealed that the bottom of the cell had swung shut after the virgin emerged and it just appeared to be still intact.

Russians Swarm More Often - Partly connected to their protective mechanism of carrying queen cells throughout the season, Russians do swarm more often than Italians and other bee breeds. (Unmanaged Italians might swarm 3 times a year, Russians 7 times a year.) One year I placed two strong Russian hives at a friend's farm for pollination. This was just behind their seasonal produce stand. They were located about 50 ft behind the store with a couple of butterfly bushes and lilac bushes in between. During the months of May and June, the owners called me seven times to come and get swarms out of those bushes! This year I opened a hive of Russians that is a second year hive. It was contained in two medium boxes and on May 3rd was busting out with bees. Inside I found seven of the nine frames from the upper box contained multiple queen cells. Obviously this hive was ready to throw off multiple swarms. The only logical thing to do was to make multiple nucs from this hive and accept the fact that a huge surplus of honey would not be gathered that year using those bees. Of course, using your swarms, and making nucs or splits has the further advantage of breaking the brood cycle for existing varroa --- which is another mite management technique, even if it does have a serious impact on that season's honey crop. My experience is that if left unmanaged, about 1/3 of the Russian colonies could swarm out over a period of a few weeks. This leaves the hive weak and queenless resulting in early failure.

Color - Russian bees can vary in color, but they are generally very dark, bordering on black. Some of the queens I have received from Steven and Angela Coy have been lighter in color, but the ones over the years from Harry Fulton, Hardemans, and Charlie Harper have been dark, almost black. The mostly Russian genetic lines from Kirk Webster and Troy Hall are darker.

The Bottom Line - Russian bees appear to be survivors, are very sensitive to environmental changes, and are exceptionally frugal. They may better co-exist with varroa mites and survive with reduced beekeeper intervention, chemical or otherwise. Switching to Russian bees could be part of the solution to reducing or eliminating mite treatments and keeping bees alive year after year. But remember that Russian Bees act differently from other species of honeybees and this

requires us to learn and apply different management techniques. Russian bees are not for everybody. And lastly, it is possible that a decision to switch to Russian bees should be “all or nothing” in order to fully take advantage of their characteristics.

Acknowledgements:

Most of this information is from my own experiences with Russian bees continuously since 2006. But other sources confirm my experiences. One of the best discussions of the topic of Russian bees is the paper “A Comparison of Russian and Italian Honeybees” by David R. Tarpy and Jeffrey Lee originally prepared in 2005. It is available online at: <http://www.cals.ncsu.edu/entomology/apiculture/PDF%20files/2.16.pdf> .

Much valuable information is available from the Russian Bee Breeders’ Association, particularly an article by Steven Coy titled “Russian Honey Bees for Commercial Honey Production and Pollination” available online at: <http://russianbreeder.org/man.htm> .

Another source of info has been the archives of “Bee-L” (Informed discussion of beekeeping issues and bee biology), particularly the postings of Bob Harrison. For information the Bee-L archives can be searched at URL: <http://community.lsoft.com/scripts/wa-LSOFTDONATIONS.exe?S1=BEE-L>

Thanks to several reviewers of this article including: Bob Harrison, Jeffrey Lee, Steven Coy, and Charlie Harper. However, any errors or omissions are strictly my responsibility. JL