

	Exploration Discovery	Genetic Identity	Mechanisms of Resistance	Breeding and Maintenance	Releases to Beekeepers	Current Sources
R U S S I A N	1994 - Exploratory trip to Primordye Region (Vladivostok) 1995-1996 - Tests of queens in Russia with parallel tests in the US to look at differences in mite growth and distribution in colonies.	A stock produced to have predictable characteristics 1997-2002 - Five yearly importations, quarantine, selection and incorporation into the breeding population of groups A, B, C.	Combination of factors - grooming, distribution of adult mites on workers vs. brood, and on worker brood vs. drone brood, mite infertility, and more recently good levels of VSH.	Designed as a closed population of 18 queen lines within breeding groups A, B, C. Queens from a group are mated with drones from the other two groups.	2000-2010 Releases of queens from selected lines via a queen breeder. 2011 - Stock maintained and queens from Russian Honey Bee Breeders Association.	Official sources- members of the RHBBA. Others- Taber's Bee Genetics (Tom Parisien), Champlain Valley (Kirk Webster)
V S H	1995 - Standardized test of queens inseminated with single drones in MI and LA showed 4 colonies with negative mite growth. These colonies had high levels of mite infertility and the effect depended on the adult workers. Called SMR.	A trait controlled by a few genes that can be incorporated (or found) in any population of bees. 1997-2005 Tests to identify the exact mechanism and demonstrate the utility of the trait in pure and outcrossed queens.	VSH - a high level of hygienic removal of mite infested worker brood cells by adult workers. Preference for cells with reproductive mites leads to finding high level of infertility in remaining infested cells. Different from responses to freeze or pin-killed brood.	Designed as an open population with the trait fixed at a high level through selection for the trait and instrumental insemination. Open population and outcrossing approach.	Distribution of instrumentally inseminated queens via Glenn Apiaries and VP Queens. Pol-line developed in cooperation with migratory pollination companies.	Instrumental Inseminated: VP Queens (SC) Harbo Bee Co. (LA) Natural matings: Lamb Apiaries Future: Pol-line Arista Bee Foundation (Hilo HI, etc.)

