

**ECOFARMING AND AGROFORESTRY FOR SELF-RELIANCE:  
Small-scale, Sustainable Growing Practices in Russia**

Leonid Sharashkin and Michael Gold, University of Missouri Center for Agroforestry,  
University of Missouri-Columbia, Columbia, MO  
and  
Elizabeth Barham, Department of Rural Sociology  
University of Missouri-Columbia, Columbia, MO

**ABSTRACT**

Agroforestry concepts are applicable to both small-scale (family farm) and microscale (e.g., home garden) cultivation. However, there is little research on the relevance of gardening practices in temperate zones to agroforestry and vice versa. In Russia, microscale ecofarming is an extremely widespread, time-tested practice. Despite the minuscule size (600 m<sup>2</sup>) of individual plots and absence of machinery, cultivators have demonstrated exceptional productivity, producing more potatoes, vegetables, berries, fruit, milk, and meat than commercial agriculture's output of these products. Currently, with 35 million families (70% of Russia's population) working 8 million ha of land and producing more than 40% of Russia's agricultural output, this is in all likelihood the most extensive microscale food production practice in any industrially developed nation. We describe some of the history and the practices of Russian microfarming and its place in Russia's total agricultural output today. We then explore the future direction of microscale ecofarming in Russia as proposed by entrepreneur Vladimir Megre in his influential *Ringling Cedars* book series, which places emphasis on greater integration of trees in agroecosystems, on nontimber forest products, and using niche market opportunities. In conclusion, parallels are drawn with small- to microscale sustainable agriculture and agroforestry in the US. We propose that temperate agroforestry in North America could benefit from a systematic study of microfarming practices and the extensive know-how accumulated by the growers. Also, agroforestry can make a major contribution to wider adoption of home food gardening in North America, helping to realize numerous economic, social, environmental, and health benefits.

**Keywords:** Dacha, ecovillage, permaculture, pine nut oil, Ringling Cedars, subsistence

**INTRODUCTION**

Agroforestry has been widely promoted as a viable alternative for small family farms. Moreover, its concepts are equally applicable to *microscale* production such as home gardening. Home gardens as both an agroforestry system and a source of local knowledge important in designing larger-scale agroforestry applications have been studied in the tropics (Kumar and Nair 2004; Wojtkowski 1993). However, such microscale cultivation in *temperate* climates—as an agroforestry system and a source of agroforestry-related know-how—has not been sufficiently explored, with the possible exception of some forest farming practices (Wiersum 2004).

Far from being nonexistent, though, such microscale farming in the temperate zone is a widespread—albeit understudied—practice. Russia serves as a telling example: even though the microscale “dacha gardens” are responsible for 40% of the country's agricultural output (Seeth et al. 1998), they have received surprisingly little attention from the academic community (Varshavskaya 1998). This paper describes the key characteristics of microfarming in Russia as a both sustainable, productive, and socially important practice with emphasis on growing fruit trees, shrubs and garden crops on very small plots of land (typically 600 m<sup>2</sup> or 0.15 ac). We then explore what we see as the future of Russian microfarming in the emerging Russia-wide *Ringling Cedars* movement. Participants in this movement advocate an even greater integration of trees in the dacha agroecosystems, diversification of production, and using microscale farming as a vehicle for sustainable rural development. In conclusion, we draw parallels with microscale agriculture in the US, to comment on the role agroforestry could play in encouraging wider adoption of these practices.

## DEFINITIONS

*Dacha.* The term dacha, dating back to at least the eleventh century, has had a myriad of meanings from “a landed estate” to exurban residences of Russian cultural and political elite (Lovell 2003, p. 8). From the 1940s on, with the emergence and rapid growth of subsistence growing by urban population, this term has been used ever more widely to denote a garden plot of an urban dweller. It is in this contemporary meaning of a garden plot (with a usual size of 600 m<sup>2</sup>, or 0.15 ac) with a simple dwelling on it, that the term dacha is used in this paper. We will refer to working this plot of land as “dacha gardening.” *Dachnik* denotes a person owning (or using) a dacha. In Russian, the term *dachnik* is now used interchangeably with “gardener” (*sadovod*). Dacha settlements are legally organized in *dacha cooperatives*, the latter responsible for creating settlement-wide infrastructure. In Russia, dacha plot cultivation has become such a widespread practice (with more than 50% of all urban families in Russia using a dacha) that it is often referred to as a *dacha movement*.

*Subsidiary plot.* Dacha is a term used to refer to a plot of land with a garden belonging to an urbanite. The similar plot of land with a garden belonging to a rural resident is referred to as a personal, private, or subsidiary plot (*lichnoe podsobnoe khoziaistvo*). Unlike dachas, subsidiary plots usually have no dwelling on them, since they are either adjacent to or in a close proximity to the owner's village house. Subsidiary plots are also larger in size, and can be up to 0.5 ha.

*Microfarming* or *microscale cultivation* is the generic term we will use to refer to dacha gardening by an urbanite and/or subsidiary plot cultivation by a villager. This generic term is needed especially because official Russian statistics often makes no distinction between dacha or subsidiary plot production.

*Permaculture* (from “permanent agriculture”) is an approach to designing and implementing small- to microscale agricultural systems (usually integrated with human habitat and based on patterns found in natural ecosystems), which could be sustainable and productive indefinitely with minimum inputs of labor and other resources.

*Subsistence growing* is a term used in literature to refer to the microscale cultivation in Russia. We will use this term as synonymous to “microfarming,” in the meaning of “cultivation of a family’s plot of land,” with the understanding, however, that this type of cultivation may not only serve to satisfy subsistence needs of the family, but also to provide products for the market (Hedlund 1989). This practice involves economic, social, and cultural dimensions that go well beyond food production (e.g., subsistence growing serves as a leisure activity and an expression of attachment to the earth [Clarke et al. 1999]).

*Self-reliance*—a term broader than subsistence growing, and includes family's deriving its livelihood from a land-based diversified microenterprise by satisfying most of the family's subsistence and social needs directly through cultivation of a family-owned landed estate (*rodovoe pomestie*) and by sale of the surplus on the market, as well as through other means (such as crafts and agritourism).

*Peasant economy*—the organization of Russia’s agriculture prior to the Bolshevik revolution of 1917, when the bulk of the country’s agricultural land was owned and worked by peasant families in small-scale operations employing no hired labor. The foundations of peasant economy were described in Chayanov’s (1925) *Theory of peasant economy*. It is recognized that microfarming practices in today’s Russia have their historic, cultural and economic roots in the centuries-long tradition of peasant living (Seeth et al. 1998; Lovell 2003).

*The Ringing Cedars*—the name of a series of books by a contemporary Russian author, Vladimir Megre, advocating return to the land and rural living as an economically and environmentally sound, socially responsible, and personally fulfilling lifestyle, as well as the realization of the economic, ecological, and spiritual role of trees in agroecosystems and in human habitat. Megre's books, the first of which was published in 1996, have gained tremendous popularity. After selling 10 million copies in Russia alone, with translations into 20 languages, they have given rise to a Russia-wide *Ringing Cedars* ecovillage movement, whose participants are setting up rural communities composed of individual family-owned homesteads of at least 1 ha each. Megre introduced the term *kin estate (rodovoe pomestie)* to refer to this self-reliant family-owned landed estate, which is in many respects similar to the traditional Russian peasant households.

*Ecovillage*—a rural settlement dedicated to environmentally sound and socially just living, which includes commitment to simple living, growing one’s own food, using alternative sources of energy (e.g., solar or wind electric power), etc. In Russia, the term ecovillage is largely understood as a settlement composed of independent kin estates, as proposed by Vladimir Megre in *Who are we?* (Megre 2001).

## **MICROFARMING PRACTICES IN TODAY’S RUSSIA**

### **Russia's Microfarming Tradition: From Peasantry to Dachas to Ecovillages**

For centuries, small-scale peasant farming was the traditional basis of Russian agriculture (Kremnev 1920). The contemporary dacha movement and the nascent ecovillage movement reflect the economic, social, and cultural continuity of this tradition of rural living. All three

forms of cultivation are characterized by the family as the primary source of labor, the prominence of manual machinery-free labor, the small size of land holdings, a focus on growing primarily for subsistence and an emphasis on the cultural and social significance of working the land. Table 1 provides a comparative summary of some of the essential traits of the peasant economy (pre-1917), a cultivation system based on dachas/subsidiary plots (194-present) and the emerging kin estates/ecovillage movement (2001-present).

**Table 1.** Characteristics of peasant economy, dacha/subsidiary plots and kin estates in Russia .

	<b>Peasant economy</b>	<b>Dacha / subsidiary plots</b>	<b>Kin estates</b>
<b>Time period</b>	prior to 1917	1941 – present	2001 - present
<b>MARKETS</b>			
Purpose of production	Connection to the land; subsistence; surplus for the market	Connection to the land; subsistence; recreation; surplus for the market	Connection to the land; spiritual fulfillment; subsistence; surplus for the market
Production (for market) primarily of	Commodities and food staples	Wide variety of vegetables & fruit (both); milk, meat, eggs (subsidiary plots)	Unique / niche products
Market outlet	Local to regional	Local	Local to global
Emphasis on	Quantity and quality	Quantity and quality	Quality and quantity
<b>LABOR</b>			
Source of labor	Family	Family	Family
Wages	No	No	No
Labor intensity	High	High	Medium to low
Labor	Manual labor	Manual labor	Creative labor
<b>CAPITAL &amp; TECHNOLOGY</b>			
Mechanization	Little to none	Little to none	Little to none
Chemicals use	Little to none	Little to none	None
<b>LAND</b>			
Size of land holdings	up to 10 ha	0.01-0.5 ha	1-3 ha
<b>CROPS</b>			
Crops	Grain, potatoes, vegetables, fruit, berries, technical crops, cattle, milk, chicken, eggs	Potatoes, vegetables, fruit, berries (both); cattle, milk, chicken, eggs (subsidiary plots)	Fruit, nuts, berries, grain, potatoes, vegetables, small cattle, milk, chicken, eggs, technical crops (flax, sunflower, etc.), timber & nontimber tree products
Emphasis on crops	Annuals	Annuals / perennials	Perennials / annuals
Emphasis of tree planting	Some - fruit trees only	Some - fruit trees only	High
<b>SOCIAL &amp; CULTURAL</b>			
Community life	Villages - <i>Obshchina</i>	Dacha cooperatives	Ecovillage—union of independent kin estates
Integration of human habitat with agroecosystem	Some	Some	Very high
Meaning of food	Subsistence; cultural significance, family tradition	Subsistence; family tradition	Information exchange with nature; subsistence, cultural significance, family tradition

Prior to the 1917 revolution, Russia had been an agrarian country with the majority of its dominant peasant population engaged in small-scale farming. By 1916, of 100 million ha sown in European Russia, 89 million ha were owned by peasants (Chayanov 1917, p. 34) and more than 90% of the peasant families were working their plots without any hired labor. Chayanov, a prominent Russian agricultural economist of that time who formulated a theory of peasant

economy still frequently referred to today, noticed that peasants' primary motivation was subsistence rather than profit and growing for the market. Consequently, both the organization and decision-making on a peasant farm were fundamentally different from a capitalist farm with wage labor (Chayanov 1925).

After 1917, the Bolshevik government nationalized all agricultural lands and implemented policies encouraging labor migration into cities aimed at turning previously independent peasants into wage workers on state-run collective farms. Even before the massive collectivization efforts of 1930s, Chayanov foresaw, that given the tradition of subsistence living so characteristic of Russian people, the era of collectivized farming and wage labor in agriculture would be short. He believed the country would inevitably return to a peasant-like land-based society (Kremnev 1920).

Indeed, as early as 1941, faced with the impending food shortages of WWII, the Soviet government reauthorized private subsistence growing and proceeded to allocate to urbanites gardening plots on the outskirts of cities. Since then, the subsistence growing movement has grown into a nationwide dacha gardening and subsidiary plot cultivation phenomenon. By the late 1990s, more than 50% of urbanites owned a dacha, and virtually all rural residents cultivated a subsidiary plot (Clarke et al. 1999).

### **Significance of Microfarming**

According to official statistics (Rossiia v tsifrah 2000, p. 202), in 1999 more than 35 million families (105 million people, or 71% of country's population) owned a dacha or a subsidiary plot and were cultivating it. This figure does not include people who do not own, but use their relatives' or friends' dacha or whose summer residence is not officially recognized as “dacha” (e.g., urban owners of a village house). The 35 million plots of these families occupy more than 8 million hectares and provide 92% of Russia's harvest of potatoes, 77% of its vegetables, 87% of berries and fruits, 59.4% of meat, and 49.2% of milk. According to Rutkevich (2001), even these astounding figures underestimate the self-provisioning effort, since they do not include harvesting wild-growing plants, berries, nuts and mushrooms, and fishing and hunting, which make an important additional contribution to the national food economy.

Artemov (2002), in a discussion of trends (1975-1994) in subsistence growing, reports that “more and more working people believed that the family could survive only by working its personal plot... [In 1994] only 10 percent of the respondents thought that they could survive without their personal plots, while 86 percent thought these were absolutely essential.”

On their fixed size plots (typically 0.06 ha for dachas; 0.15-0.5 ha for subsidiary plots) growers have attained a level of productivity and sustainability rarely seen in commercial agriculture, outcompeting the latter in quantity, quality and price. Mass media abound with reports of citizens' consistently growing bumper crops of vegetables (e.g., harvesting 2.5 tons of potatoes from a 150m<sup>2</sup> plot (Lovell 2003, p. 165)), and it is usual for a family of four to satisfy all of the family's needs in potatoes and other vegetables, fruits and berries, and—for rural resident—milk, eggs, and meat—from the plot they cultivate. The absence of grains in microfarming production is explained by the limited size of the plots and the heavily subsidized grain and bread prices.

### **Size/Scale of Cultivation**

The median size for dacha plots is 0.05 to 0.06 ha, and subsidiary plots can be up to 0.5 ha (Lovell 2003). The size of a typical dacha plot is only enough for several fruit trees, a number of berry bushes and vegetable beds, and a simple shelter. Because of the rigid state-imposed limits on the maximum size of plots, growers were obliged to intensify production on the little land they had available and have attained remarkable productivity.

### **Labor and Capital Employed**

Just as in the peasant economy, the dacha/subsidiary plot gardening rely on wage-free manual family labor and are characterized by high levels of labor intensity. Artemov (2002) found that in 1999 rural residents were spending on average 17.6 and 19.4 hours (women and men, respectively) per week during the growing season cultivating their subsidiary plot. Clarke et al. (1999) found that in their four sample regions each adult member of a family owning a dacha was spending on average 555 hours per growing season cultivating their garden plot. In addition, 90% of dachniks have to travel to reach their garden plot, and each round trip takes on average from 1.5 to more than 4 hours depending on the region (Clarke et al. 1999). This time investment is all the more impressive given that many dachniks hold regular full-time jobs in the city and work their plot on weekends and during their vacations. Their commitment of time, effort and money serves as another indication of the deep significance they attach to maintaining a constant contact with the earth.

Interestingly, this labor intensity is consistent with Chayanov's vision, expressed in 1920, that the future growth of Russia's agriculture will be due not to the growth of capital intensity, but to growing labor intensity and expanding agronomic know-how (Kremnev 1920).

The economic productivity of dacha/subsidiary plot gardens is remarkable given the lack of special agronomic/horticultural training on the part of most of the gardeners, the minuscule size of the plots, the marginal lands to which they have been allocated, the absence of machinery, and the substantial financial and labor commitments required for self-provisioning.

### **Crops and Growing Methods**

Russian cultivators grow a wide variety of crops: potatoes, other vegetables and greens, fruit (apples, pears, plums, cherries, etc.), small fruit (raspberries, currants, gooseberries, etc.) and berries (strawberries, etc.), and—on subsidiary plots—cattle, milk, chicken, eggs.

The majority of growers share the notion that the only way to assure the ecological purity of their food is to grow one's own (Clarke et al. 1999) and, using organic production methods, have accumulated substantial know-how about organic growing practices.

The absence of machinery on dacha/subsidiary plots has led numerous gardeners to become inventors of tools to help with manual cultivation of their gardens. One popular invention is the "Fokin's cultivator," a simple and versatile hand tool simplifying 20 gardening operations and essential for no-till gardening (Fokin 1999). Gardening enthusiasts using the tool have reported significant labor savings and increased yields from no-till plantings (Petuhov 2001).

The no-till gardening methods using Fokin's cultivator tool have been growing in popularity. According to Kurdjumov, an agronomist who devoted his career to studying, systematizing, and disseminating information on successful dacha gardening practices, with improved agronomic understanding and better cultivation techniques gardeners could achieve their current yields with only 10% of their current labor expenditure (Kurdjumov 2003). It is not the quantity of labor, but its creativity, one's ability to learn from gardening experience and from patterns found in natural ecosystems, that are important to assure high yields. A proponent of permaculture approaches, Kurdjumov stresses that the amount of manual labor employed in dacha plot cultivation is a measure of the lack of understanding of how this agroecosystem works. Through his "dacha bestsellers," he has proposed many techniques to remedy the situation (Kurdjumov 2004).

### **Subsistence, Market Production and Cultural Significance**

Despite their significant contribution to the national food economy, dachas to a large degree function outside the cash economy: most dachniks do not sell their produce, but prefer to share the surplus with relatives and friends who do not own a dacha (Clarke et al. 1999). Subsidiary plots, on the other hand, are usually used both for subsistence and market production (Hedlund 1989; Kalugina and Antonova 1984) and are conducive to development of small-scale local enterprises.

In both cases, however, the function of garden plots goes well beyond their economic significance and they serve as an important means of active leisure as well as a way to reconnect to the land (Lovell 2003). Seethe et al. (1998) have found that the opportunity costs associated with microfarming far exceed the material gains realized. This finding is corroborated by Clarke et al. (1999) who estimated that an average dachnik invests \$1,000 worth of labor each year to produce \$140 worth of agricultural produce. For Clarke et al. "the dacha appears to make no economic sense at all, providing the most meagre of returns for an enormous amount of toil." This is indicative of microfarming being "much more than a means of supplementing the family diet or of saving a few roubles" (Clarke et al. 1999, p. 45).

Indeed, if microfarming—the mode of agricultural production responsible for 40% of Russia's total agricultural output—"appears to make no economic sense at all," it means that the traditional economic calculus fails to capture its real value. To understand Russia's microfarming phenomenon we clearly need a wider approach, similar to one described by E. F. Schumacher more than three decades ago (1975, pp.112-113):

"...man's management of the land must be primarily oriented towards three goals—health, beauty, and permanence. The fourth goal—the only one accepted by the experts—productivity, will then be attained almost as a by-product. The crude materialist view sees agriculture as 'essentially directed towards food-production.' A wider view sees agriculture as having to fulfil at least three tasks:—to keep man in touch with living nature, of which he is and remains a highly vulnerable part;—to humanise and ennoble man's wider habitat; and—to bring forth the foodstuffs and other materials which are needed for a becoming life.

I do not believe that a civilisation which recognises only the third of these tasks, and which pursues it with such ruthlessness and violence that the other two tasks are not merely neglected but systematically counteracted, has any chance of long-term survival.”

Vladimir Megre (1996, 2001) was the first author to become fully aware of dacha’s role in maintaining urbanites’ physical and spiritual link to nature. His books have brought about important developments in Russia’s microfarming.

## **THE RINGING CEDARS: TREES FOR SELF-RELIANCE**

### **The Ringing Cedars Ecovillage Movement**

Over the last decade, Russian entrepreneur Vladimir Megre has published eight books in a series entitled *The Ringing Cedars* (Megre 2005). The books advocate a return to the land and rural living as consistent with Russia’s traditional millennia-old lifestyle and the economic, social, cultural, and spiritual needs of human nature. They also promote greater environmental awareness and a realization of the significance of trees and nontimber tree products to achieving the goals of those returning to the land.

*The Ringing Cedars* present a holistic philosophy of a harmonious relationship between humanity and nature and propose a model of economic organization based on a decentralized national economy comprised of sustainable rural settlements that are in turn composed of individual family-owned homesteads (“kin estates,” *rodovoe pomest'e*). *The Ringing Cedars* books have sold more than 10 million copies in Russia. They have been met with a powerful societal response and sparked a fast-growing ecovillage movement by the same name (Medikov 2003). Prior to the publication of the first book in the series in 1996, there were virtually no ecovillages. By June 5, 2004, a conference of the Ringing Cedars Movement in the city of Vladimir, Russia, gathered delegates from more than 150 ecovillages scattered across 48 of the 89 regions of Russia.

The ecovillage movement, while growing out of the dacha movement and sharing many of its traits (see Table 1) is also different in a number of important characteristics. For example, while the typical size of a dacha plot is 0.06 ha, and the maximum size of a subsidiary plot is 0.5 ha, in the newly forming ecovillages each family privately owns at least 1 ha of land. This larger size is warranted by the participants’ aspiration to integrate human habitat with the agroecosystem, and—by growing a wide variety of crops and trees and taking advantage of other opportunities such as agritourism—to create a self-reliant land-based household, approaching self-sufficiency not only in food, but also in technical crops (e.g., flax, sunflower), timber, firewood, medicinal plants, and other products. It is also recognized that maintaining contact with one’s own piece of land and establishing a circular flow of matter, energy, and information between each family and their kin estate’s ecosystem is important for both physical and psychological well-being of the residents. The shared goals of ecovillages also include stewardship over local natural resources and a commitment to creating a social organization conducive to independent, economically secure, socially rich, and personally rewarding lifestyles.

### **Emphasis on Trees and Nontimber Forest Products**

Both the *Ringing Cedars* books and the social movement they have given rise to place a special emphasis on integrating trees into agroecosystems. It is recognized that trees provide a wide range of food and nonfood products, plus many other benefits, and are imbued with a deep symbolic meaning. The latter is especially true for the Siberian cedar (Siberian pine, *Pinus sibirica*), which has been traditionally valued not only as a multipurpose tree producing high-quality timber and pine nuts, but also as a spiritual symbol (Sharashkin and Gold 2004).

In the vision of Vladimir Megre and the new ecovillage settlers, each kin estate must be surrounded by a windbreak and represent a multilayer perennial polyculture system with a wide variety of plants, both herbaceous and woody. As an example of the potential long-run sustainability and productivity of such a system, Vladimir Megre cites 19th century agroforestry practices in central Russia. Book 5 in the *Ringing Cedars* series contains a chapter entitled “An Eternal Garden,” describing a 200-year-old system of apple orchards surrounded by windbreaks of *Pinus sibirica* in the Vladimir region, 250 km east of Moscow. The local residents reported that with no fertilization or maintenance these orchards, abandoned shortly after 1917, were still producing better crops and better-tasting apples than the carefully tended trees in the nearby villages. The orchards also provided high-quality hay. The exceptionally cold winter of 1976, which killed most fruit trees in this region, did no damage to the windbreak-protected orchards. Megre’s book includes color photographs of the windbreak and the orchard with fruit-laden trees (Megre 2001).

Megre also used this example of the “eternal garden” to illustrate his proposition that agricultural productivity and sustainability depend more on gardener’s creativity than on the amount of labor employed. In his vision, a properly designed agroecosystem would be self-sustaining and productive with minimal inputs of labor and other resources.

Megre was also instrumental in popularizing the economic potential of nontimber forest products, particularly pine nut oil. In his first book, *Anastasia* (1996; English translation 2005), he argued that the oil pressed from the seed of *Pinus sibirica* was a product with the potential “to raise the whole of Siberia above the poverty level” (Megre 2005, p. 16). This statement is corroborated by the fact that prior to 1917 Russian exports of pine nut oil generated 10% of the country’s foreign trade revenues (FAO 1998) and today pine nut oil is one of the most expensive edible oils on the market (Sharashkin and Gold 2004).

### **Niche Markets and Other Opportunities**

Megre has observed that both dachniks and the new ecovillagers can derive their livelihood from a combination of subsistence growing and taking advantage of niche market opportunities. In a country traditionally placing very high value on homegrown produce, there are vast opportunities for direct marketing of these products directly to the consumer. Megre (2001) has described an ever more widespread practice of wealthy urbanites without a garden contracting with a particular dachnik or rural resident to grow an organic food supply for them (including canned food for the winter). This practice is all the more important given the absence of organic food certification and labeling in Russia. Apart from growing one’s own food supply, personally

knowing the grower may be the best available assurance of the food quality. As an extension of this practice, Megre suggested branding the products produced by individual growers. When marketed through stores and other outlets, the branded products allow the consumers to express their preferences by choosing a product produced by a certain family. Such family-labeled products—notably family-produced pine nut oil—are already available on the market.

Another opportunity for minifarmers, new to Russia, is agritourism. Megre (2001) has suggested that microfarming practices perfected by Russia's growers are of such interest both in Russia and internationally that agritourism may become a major contribution to both the local and national economy. Indeed, the newly formed ecovillages report such an increased flow of visitors that many of them have even established restrictions on the number of visitors received at any one time, so that the tourists do not distract the settlers from their own activities (Anatoly Molchanov, leader of ecovillage "Rodnoye" in the Vladimir region, pers. comm.).

## CONCLUSIONS AND IMPLICATIONS FOR THE US

In Russia, microfarming is a widespread and time-tested practice assuring 40% of the country's agricultural output and providing multiple other benefits: *environmental*, including the sustainability of microscale production and its contribution to the conservation of biodiversity, decreasing the pressure on lands under commercial agriculture, preserving genes of heirloom vegetable varieties and decreasing the population burden on cities and city infrastructure in summer months; *economic*, including increased food security and small-scale rural development through the sale of the surplus products; *social*, creating a better sense of community and greater social interaction for growers and serving as a means to maintain urbanite's connection to nature; *health*, improving the quality and security of the food supply and allowing dachniks to escape urban pollution and spend weekends in beneficial physical activities associated with gardening. Also, the gardening movement is an important source of local know-how about crops and growing techniques. While the gardens have traditionally included fruit trees, the participants of Russia's fast growing ecovillage movement place an even greater emphasis on tree planting and creating highly diverse and integrated agroecosystems.

In the US, agroforesters have concentrated their efforts on promoting agroforestry practices with farmers. However, gardeners represent an important group of potential agroforestry adopters. According to the National Gardening Association's estimate, they already produce up to \$18 billion/year worth of food for private consumption (Dahlberg 1994). Home gardeners and other microscale growers can both harbor knowledge valuable for agroforestry applications (as has already been demonstrated by forest farming practitioners) and benefit from incorporation of agroforestry crops and methods in their gardens. Moreover, in many instances gardeners may be more receptive to the idea of adopting an agroforestry crop or practice than farmers, since they may have fewer financial constraints and different attitudes than farmers.

If American agroforesters extend their attention to microgrowers, such as backyard and community gardeners, other urban agriculturists, hobby farmers, and small acreage owners, they could both derive valuable know-how from these new collaborations and promote agroforestry concepts to the groups previously not associated with agroforestry. These new multidisciplinary

partnerships might bring together individuals and groups working in areas as diverse as gardening and the gardening industry, master gardener programs, permaculture, organic growing, social sciences and local foodsheds, food and nutrition sciences, health, community development and urban development, leisure studies and natural sciences, economics and agricultural economics, and biodiversity conservation.

Russia's experience shows that gardening even as a leisure activity can be highly beneficial and productive, and development of a range of agroforestry practices suitable for microscale application may offer a sustainable option to gardeners throughout the US.

### ACKNOWLEDGEMENTS

This work was funded through the University of Missouri Center for Agroforestry under cooperative agreement 58-6227-1-004 with the ARS. Any opinions, findings, conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

### REFERENCES

- Artemov, V. A. 2003. The village in the 1990s: Trends in daily activity among the rural population. *Sociological Research* 42(6):27-43.
- Chayanov, A. V. 1925. *Organizatsiia krest'ianskogo hoziaistva*. Kooperativnoe izdatel'stvo, Moskva.
- Chayanov, A. V. 1917. *Chto takoe agrarnyi vopros?* Universal'naia biblioteka, Moskva, 64 pp.
- Clarke, S., L. Varshavskaya, S. Yaroshenko, and M. Karelina. 1999. The Russian dacha and the myth of the urban peasant. Moscow: The University of Warwick and Institute for Comparative Labour Relations Research (ISITO).  
<http://www.warwick.ac.uk/fac/soc/complabstuds/russia/employ.html>
- Dahlberg, K. A. 1994. Localizing local food systems. *Neighborhood Works*, February/March.
- FAO (Food and Agriculture Organization of the United Nations). 1998. Non-wood forest products from conifers. Non-wood forest products series, issue 12. 124 pp. URL:  
[http://www.fao.org/documents/show\\_cdr.asp?url\\_file=/docrep/X0453E/X0453e00.HTM](http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/X0453E/X0453e00.HTM)
- Fokin, V. V. 1999. *K zemle s naukoj*. URL: <http://ploskorez.nm.ru>
- Hedlund, S. 1989. *Private agriculture in the Soviet Union*. London/New York: Routledge, 208 pp.

- Kalugina, Z. I., and T. P. Antonova. 1984. *Lichnoe podsobnoe khoziaistvo sel'skogo naseleniia: problemy i perspektivy*. Nauka, Sibirskoe otdelenie, Novosibirsk, 190 pp.
- Kremnev, I. 1920. *Puteshestvie moego brata Alekseia v stranu krest'anskoi utopii*. Gosudarstvennoe izdatel'stvo, Moskva.
- Kumar, B. M., and P. K. R. Nair. 2004. The enigma of tropical homegardens. *Agroforestry Systems* 61:135-152.
- Kurdjumov, N. I. 2004. *Masterstvo plodorodiia*. Vladis, Rostov-na-Donu. 512 pp.
- Kurdjumov, N. I. 2003. *Umnyi sad i hitryi orogord: dachnaia uspehologiia*. Vladis, Rostov-na-Donu, 384 pp.
- Lovell, S. 2003. *Summerfolk: A history of the dacha, 1710-2000*. Ithaca/London: Cornell University Press, 260 pp.
- Medikov, V. 2003. *Putin, Megre i budushchaia Rossiia, ili, Putin i Megre, Megre i Putin*. Chistyevody, Moskva.
- Megre, V. 2005. *Anastasia*. The Ringing Cedars Series, Book 1. Woodsworth J. (trans.), Sharashkin L. (ed.). Columbia, MO: Ringing Cedars Press, 202 pp.
- Megre V.N. 2001. *Kto zhe my? Seriia Zvenishchie kedry Rossii, kinga 5*. Dilia, Moskva, Sankt-Peterburg, 236 pp.
- Megre, V. N. 1996. *Anastasiia*. Seriia Zvenishchie kedry Rossii, kinga 1. Izd-vo Moskovskaia tip. no. 11, Moskva.
- Petuhov, A. V. 2001. *Opyt nestandartnogo zemledelia: opyt Ioshkar-Oly*. URL: <http://ploskorez.nm.ru>
- Rossiia v tsifrah. 2000. Goskomstat: Moskva.
- Rutkevich, M. N. 2001. *Osnovnoe sotsialnoe protivorechie sovremennogo rossiiskogo obshchestva*. *Sotsiologicheskie issledovania* 4: 49-60.
- Seeth, H. T., S. Chachnov, A. Surinov, and J. von Braun. 1998. Russian poverty: Muddling through economic transition with garden plots. *World Development* 26(9):1611-1623.
- Sharashkin, L., and M. Gold. 2004. Pine nuts (pignolia): Species, products, markets, and potential for U.S. production. In *Northern Nut Growers Association 95th Annual Report*. Proceedings of the 95th annual meeting, Columbia, MO, August 16-19, 2004.
- Schumacher, E. F. 1975. *Small is beautiful: Economics as if people mattered*. New York: Harper & Row, 305 pp.

Varshavskaya, E. 1998. Sotsial'nyi fenomen sibirskoi 'fazendy'. Institute for Comparative Labour Relations Research (ISITO), Kemerovo.

<http://www.warwick.ac.uk/fac/soc/complabstuds/russia/employ.html>

Wiersum, K. F. 2004. Forest gardens as an 'intermediate' land-use system in the nature-culture continuum: Characteristics and future potential. *Agroforestry Systems* 61:123-134.

Wojtkowski, P. A. 1993. Toward an understanding of tropical home gardens. *Agroforestry Systems* 24(2):215-222