ANNEX C.

DATABASE ON THE EFFECTS OF RADIATION ON TERRESTRIAL PLANTS (RELEVANT TO NORTHERN AREAS), CHRONIC AND ACUTE EXPOSURE. RUSSIAN/FSU DATA.

EFFECTS OF RADIATION ON PLANTS (RELEVANT TO NORTHERN AREAS, RUSSIAN DATA), CHRONIC AND ACUTE EXPOSURE (Effect codes: NE-no effect; CG- cytogenetic effect; REPR-effect on reproduction;MT-effect on mortality; MB-effect on morbidity; ECOL -ecological effect; STIM - stimulation; AD - adaptation)

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
P1-1	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 5-6 km from ChNPP. West branch of radioactive trace. Total number of model trees was 15. Age of pine forest was 35 years. 1987-1988.	Chernobyl fallout, also hot particles (Uox)	1,5E+7 Bq/m2 (1986)	(3,6-4,3)E-3 Gy/day (1988)	15-20 Gy (by May, 1987)	In 1987, on the most damaged plot all pine shoots, generative organs and most part of sleep buds died. Partial necrosis of needles of last years occured.	MT	Abaturov et.al., 1991; Karaban' et.al.,1978; Mishenkov et.al., 1983; Spirin et.al., 1985; Fedotov et.al., 1979; Karaban', Tikhomirov,1967.
P1-2	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 5-6 km from ChNPP. West branch of radioactive trace. Total number of trees analyzed was 15. Age of pine	Chernobyl fallout, also hot particles (Uox)	1,5E+7 Bq/m2 (1986)	(3,6-4,3)E-3 Gy/day (1988)	15-20 Gy (by May,1987)	Anatomic and morphological changes in the needle structure were revealed (form of needle section increased, density of resin duct decreased by 40%, number of conductive elements formed by cambium increased). On aixiblates full-grown in 1987,	MB	Abaturov et.al., 1991; Karaban' et.al.,1978; Mishenkov et.al., 1983; Spirin et.al., 1985; Fedotov et.al., 1979; Karaban', Tikhomirov,1967.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			forest was 35 years. Survey of 1987-1988.					anomalous monomial and trinomial brachiblastes were found.		
P1-3	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 5-6 km from ChNPP. West branch of radioactive trace. Total number of trees analyzed was 15. Age of pine forest was 35 years. 1987-1988.	Chernobyl fallout, also hot particles (Uox)	4,0E+7 Bq/m2	(1,4-1,7)E-3 Gy/day (1988)	7-9 Gy (by May,1987)	In 1987, oppression of growth of auxiblastes and needles of 1986 were observed.	MB	Abaturov et.al., 1991; Karaban' et.al.,1978; Mishenkov et.al., 1983; Spirin et.al., 1985; Fedotov et.al., 1979; Karaban', Tikhomirov,1967.
P1-4	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 5-6 km from ChNPP. West branch of radioactive trace. Age of pine forest was 35 years, number of trees analyzed -15.	Chernobyl fallout, also hot particles (Uox)	4,0E+7 Bq/m2	(1,4-1,7)E-3 Gy/day (1988)	7-9 Gy (by May,1987)	Anatomic and morphological changes in the needle structure (flattening of needle, density of resin duct increased on 60%) were observed.	MB	Abaturov et.al., 1991; Karaban' et.al.,1978; Mishenkov et.al., 1983; Spirin et.al., 1985; Fedotov et.al., 1979; Karaban', Tikhomirov,1967.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			Studies of 1987-1988.							
P1-5	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 5-6 km from ChNPP. West branch of radioactive trace. Total number of trees analyzed - 15.	Chernobyl fallout, also hot particles (Uox)	1,5E+6 Bq/m2	(2,4-4,8)E-4 Gy/day (1988)	2-3 Gy (by May,1987)	In the plot with the lowerst density contamination visible signs of radiation damage were not revealed.	NE	Abaturov et.al., 1991; Karaban' et.al.,1978; Mishenkov et.al., 1983; Spirin et.al., 1985; Fedotov et.al., 1979; Karaban', Tikhomirov,1967.
P2-1	Trees	*Pinus sylvestris L. Scotch pine Pollen*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest near v.Chistogalovka. Total number of trees analyzed - 25.	Cs-137, Sr-90, hot particles		(1,4-2,6)E-3 Gy/day (1990); (9,6-19,2)E-4 Gy/day (1991)	6-8 Gy (by 01.05.90)	Strong correlation between the pollen viability and level of radioactive contamination was revealed from comparison of results obtained on the plots under study. In 1990 and 1991, pollen viabilities were (75,7±2,3)% and (74,7±3,5)%, respectively. In 1990, percentages of branching and multi-branching pollen tubes having 4 and more shoots amounted to 38,8% and	MB	Surso, 1993.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
								1,6% respectively (in the control 28,8% and 0,1%).		
P2-2	Trees	*Pinus sylvestris L. Scotch pine Pollen*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest (Izumrudnoye). Total number of trees analyzed - 20.	Cs-137, Sr-90, hot particles		(1,4 - 2,6)E-4 Gy/day (1990);(4,8 - 19,2)E-5 Gy/day (1991)	1,0-1,2 Gy (by 01.05.90)	Strong correlation between the pollen viability and level of radioactive contamination was revealed from comparison of results obtained on the plots under study. In 1990 and 1991, pollen viability were (83,1±3,2)% and (85,0±1,8)%, respectively. In 1990, percentages of branching and multi-branching pollen tubes having 4 and more shoots amounted to 55,5% and 2,0%, respectively (in the control - 28,8 and 0,1%).	MB	Surso, 1993.
P2-3	Trees	*Pinus sylvestris L. Scotch pine Pollen*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest (near the farm of Novo-Shepelichi forestry). Total	Cs-137, Sr-90, hot particles		(3,6-8,4)E-4 Gy/day (1990); (1,2-6,0)E-4 Gy/day (1991)	2,5-3,5 Gy (by 01.05.90)	Strong correlation between the pollen viability and level of radioactive contamination was revealed from comparison of results obtained on the plots under study. In 1990 and 1991,	MB	Surso, 1993.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			number of trees analyzed - 20.					pollen viabilities were (84,2±2,5)% and (83,6±3,1)%, respectively. In 1990, percentages of branching and multi-branching pollen tubes having 4 and more shoots amounted to 52,9% and 2,1% (in the control 28,8 and 0,1%).		
P2-4	Trees	*Pinus sylvestris L. Scotch pine Pollen*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest (near the railway crossing between the abandoned concrete mixing plant and v.Yanov). Total number of trees analyzed - 25.	Cs-137, Sr-90, hot particles		(6,0-24)E-4 Gy/day (1990);(4,8-20,4)E-4 Gy/day	20-25 Gy (by 01.05.90)	In 1990 and 1991(near the railway crossing and abandoned concrete mixing plant and v.Yanov), pollen viabilities were (72,9±4,8)% and (77,4±3,9)%, respectively. In 1990, percentages of branching and multi-branching pollen tubes having 4 and more shoots amounted to 41,5% and 8,0% respectively (in the control 28,8% and 0,1%).	MB	Surso, 1993.
P3-1	Trees	*Pinus sylvestris L.*	Field experiment (5-13 May,1977): Acute exposure of	Acute external gamma			50 Gy	Trees of 1-2nd classes. By the end of the 1st year after exposure, in isodose area	MB	Spirin et.al., 1983; Karaban' et.al, 1980; Spirin,

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Scotch pine	an experimental plot of pine-birch forest (trees of 30-year old). The source of exposure was a mobile gamma-facility with Cs-137 (total activity about 1,18E+15 Bq). Effects on trees of 1st-2nd classes (Kraft classification), n=330.	exposure				of 50 Gy numbers of living were 80%. In 2 years after exposure, in isodose areas of 25 and 50 Gy numbers of living trees were 80 and 50%, respectively. In 3 years after exposure, in isodose areas of 15, 25 and 50 Gy numbers of living trees were 90,70 and 30%, respectively.		1981.
P3-2	Trees	*Pinus sylvestris L. Scotch pine*	Field experiment (5-13 May,1977): Acute exposure of an experimental plot of pine-birch forest (trees of 30-year old). The source of exposure was a mobile gamma-facility with Cs-137 (total activity about 1,18E+15 Bq).				1-50 Gy	Trees of 3th class. In 1 year after exposure, in isodose areas of 1-2,5; 5-10; 15; 25 and 50 Gy numbers of living trees were 80; 90; 80; 65 and 70%, respectively. In 2 years after exposure, in isodose areas of 1-2,5; 5-10; 15; 25 and 50 Gy numbers of living trees were 65;90; 80; 65 and 50%, respectively. In 3	MB	Spirin et.al., 1983; Karaban' et.al, 1980; Spirin, 1981.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			Effects on trees of 3rd class (Kraft classification), n=164.					years after exposure, in the isodose areas of 1-2,5; 5-10; 15; 25 and 50 Gy numbers of living trees were 65;90; 60; 25, and 25%, respectively.		
P4-1	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Damaged pine stand in the area of v.Chistogalovka-station Yanov (west trace of radioactive fallout). 1990.	Cs-137, Sr-90, hot particles		1,5E-3 Gy/day (1990)		24,3% pines died; 11,9% pines dried up; 30,8% pines were weakened; 30% pines were healthy. Natural renewal of birch, field-ash (Sorbus aucuparia), buckthorn and willow was observed. Degree of fruiting decreased.	MB	Pautov, Il'chukov,1993.
P4-2	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Damaged pine stand in the area of v.Chistogalovka-station Yanov (west trace of radioactive fallout). 1990.	Cs-137, Sr-90, hot particles		3,4E-3 Gy/day (1990)		78% pines died; 2,9% pines were healthy. Natural renewal of birch, field-ash (Sorbus aucuparia), buckthorn and willow have been marked. Degree of fruiting decreased.	MT	Pautov, Il'chukov,1993.
P4-3	Trees	*Pinus sylvestris L.*	Area contaminated as a result of the Chernobyl accident.	Cs-137, Sr-90, hot particles		4,6E-3 Gy/day (1990)		87,4% pines died; 0,9% pines were healthy. Natural renewal of birch,	MT	Pautov, Il'chukov,1993.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Scotch pine	Damaged pine stand in the area of v.Chistogalovka-station Yanov (west trace of radioactive fallout). 1990.					field-ash (Sorbus aucuparia), buckthorn and willow were found. Degree of fruiting decreased.		
P5-1	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident (v.Dityatki).	Cs-137, Sr-90, hot particles	(1,85E+5 - 3,7E+5) Bq/m2 (1986)		0,5-1,0 Gy	In vegetation season of 1986, stimulation effect (additionally growth of annual shoots) was observed. Next years visible radiation effects were not observed.	STIM	Kalchenko, Fedotov, 2001; Kalchenko et.al.,2000.
P5-2	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident (v.Zapol'ye).	Cs-137, Sr-90, hot particles	(1,48E+6 - 1,85E+6) Bq/m2		1,0-5,0 Gy	In the first two years after the accident decrease of annual growth, morphological changes of vegetative organs (second growth, variation of needle length, gemmation on the apex of annual shoots) were observed.	MB	Kalchenko, Fedotov, 2001; Kalchenko et.al.,2000.
P5-3	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident (v.Lelev).	Cs-137, Sr-90, hot particles	(3,33E+6 - 3,7E+6) Bq/m2		5,0-10 Gy	Oppression of growth of shoots, needles, growth of wood, damage of part of crowns and died of the lower class of trees were observed.	MB	Kalchenko, Fedotov, 2001; Kalchenko et.al.,2000.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
P5-4	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident (v.Lelev).	Cs-137, Sr-90, hot particles	(3,33E+6 - 3,7E+6) Bq/m2		5,0-10 Gy	Changes of morphogenesis of vegetative organs, changes in needle ultrastructure, depression of growth of meristematic tissues and short-cut shoots were observed.	MB	Kalchenko, Fedotov, 2001; Kalchenko et.al.,2000.
P5-5	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident (v.Chistogalovka).	Cs-137, Sr-90, hot particles	(1,48E+7 - 1,85E+7) Bq/m2		5,0-15 Gy	Change of generative organs manifested themselves in form of decrease of male flowers, decrease in the numbers of seeds in cones, decrease of seed germination.	MB	Kalchenko, Fedotov, 2001; Kalchenko et.al.,2000.
P5-6	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident (v.Chistogalovka).	Cs-137, Sr-90, hot particles	(1,48E+7 - 1,85E+7) Bq/m2		5,0-15 Gy	During the next three years in the area of moderate damage, recovery of trees have been occured .	REPR	Kalchenko, Fedotov, 2001; Kalchenko et.al.,2000.
P5-7	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Sublethal area of radioactive damages of trees	Cs-137, Sr-90, hot particles	(1,48E+7 - 2,04E+7) Bq/m2		10-20 Gy	Part of trees died. By 1997, about 90% of pines died, and 10% of pines restored.	MT	Kalchenko, Fedotov, 2001; Kalchenko et.al.,2000.
P5-8	Trees	*Pinus sylvestris L.*	Area contaminated as a result of the Chernobyl accident.	Cs-137, Sr-90, hot particles	(2,96E+7 - 5,0E+7) Bq/m2		80-100 Gy	By May of 1986, all pine forest died.	MT	Kalchenko, Fedotov, 2001; Kalchenko

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Scotch pine	Lethal area of radioactive damages of trees ("red forest").							et.al.,2000.
P5-9	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident (v.Chistogalovka).	Cs-137, Sr-90, hot particles	(1,48E+7 - 1,85E+7) Bq/m2		5,0-15 Gy	*Cytogenetic effects.* In 1986-1987, in germs of seeds numbers of cells with chromosomal aberrations were 7 times higher then those in the control. In 1993, cytogenetic effects remained at the level of first two years after the accident, being about 8 times higher than the control values. In 1997-1998, levels of cytogenetic effects were still 2-3 times higher than the control.	CG	Kalchenko, Fedotov, 2001; Kalchenko et.al.,2000.
P5-10	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident (v.Dityatki and Zapol'ye).	Cs-137, Sr-90, hot particles	(1,85E+5 - 1,85E+6) Bq/m2		0,5-5,0 Gy	*Cytogenetic effects.* In 1986-1987, numbers of cytogenetic damages did not differ from the control.	CG	Kalchenko, Fedotov, 2001; Kalchenko et.al.,2000.
P5-11	Trees	*Pinus sylvestris L.*	Area contaminated as a result of the Chernobyl accident	Cs-137, Sr-90, hot particles	(1,85E+5 - 1,85E+6)		0,5-5,0 Gy	In 1997-1998, numbers of cytogenetic damages did not differ from the control.	CG	Kalchenko, Fedotov, 2001; Kalchenko

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Scotch pine	(v.Dityatki and Zapol'ye).		Bq/m2					et.al.,2000.
P5-12	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Sublethal area of radioactive damages of trees	Cs-137, Sr-90, hot particles	(1,48E+7 - 2,04E+7) Bq/m2		10-20 Gy	*Cytogenetic effects.* In 1993, the levels of cytogenetic effects exceeded the control by 3 times.	CG	Kalchenko, Fedotov, 2001; Kalchenko et.al.,2000.
P5-13	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Pine forest on transect from the Chernobyl NPP to boundary of the 30-km zone was studied. Genetic effects in pine seeds of first two reproductions were analyzed.	Cs-137, Sr-90, hot particles	(1,85E+5 - 2,04E+7) Bq/m2		0,5-20 Gy	*Genetic effects*. Mutation frequency in fermental locuses were 4 -17 times higher, and levels of cells with chromosomal aberrations in seed germs were 1,5 - 7 times higher then those in the control.	CG	Kalchenko, Fedotov, 2001; Kalchenko et.al.,2000.
P6-1	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Pines in the 30-km area of the Chernobyl NPP.Trees were 10-	Cs-137, Sr-90, hot particles		(1,2-9,5)E-3 Gy/day		*Morphological changes.* Growth of shoots was not observed. Some trees had short cactus-shaped and pineapple-shaped shoots of 1986. Needle were curved, fleshy, dark and hard.	ECOL	Sidorov, 1994; Sidorov, 1996.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			12 years old. 1987.					Sizes of buds were higher then those in the control. New shoots were formed from sleep buds directly on the stems. At 0,04-0,43 Gy awakening of sleep buds was marked. Some pines had formations resembling the "witches brooms".		
P6-2	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Cultures of pines in the 30-km area of the Chernobyl NPP. Trees were 10-12 years old. 1987.	Cs-137, Sr-90, hot particles		(1,2-9,5)E-3 Gy/day		*Chromosomal aberrations.* In 1987, levels of chromosomal aberrations and other damages were practically the same at different exposure levels; yield of chromosomal aberrations did not changed up to 1990.	CG	Sidorov, 1994; Sidorov, 1996.
P7-1	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident; 4 km to the west; pine forest (trees 25-35-years old).	Ce-144;Ru-106;Zr-95;Nb-95;Cs-134;Cs-137;Sr-90; hot particles			5-6 Gy and higher (by 01.05.87)	Multybuds. On the shoots of first degree about 15-20, sometimes up to 30 buds were formed per one shoot. As a rule, these buds had big size, congested and disordered allocation.	MB	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990; Kozubov et.al., 1993.
P7-2	Trees	*Pinus sylvestris*	Area contaminated as a result of the	Ce-144;Ru-106;Zr-			0,3-0,4 Gy (by	Transformation of bud scales. In fall of 1986, in	MB	Kozubov, Taskaev, 1994;

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		L. Scotch pine	Chernobyl accident; 4 km to the west; pine forest (trees 25-35-years old).	95;Nb-95;Cs-134;Cs-137;Sr-90; hot particles			01.05.87)	10-15% of investigated pines the transformations of bud peels into leaf-like formations have been revealed.		Kozubov, Taskaev, 1990; Kozubov et.al., 1993.
P7-3	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident; 4 km to the west; pine forest, trees 25-35-years old	Ce-144;Ru-106;Zr-95;Nb-95;Cs-134;Cs-137;Sr-90; hot particles			0,3-0,4 Gy (by 01.05.87)	Second growths. In fall of 1986, short and thick second growths have been grown on some pine trees. In some cases, on these shoots the vegetative buds were formed on the place of brachyblasts.	MB	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990; Kozubov et.al., 1993.
P7-4	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident; 4 km to the west; trees 25-35-years old	Ce-144;Ru-106;Zr-95;Nb-95;Cs-134;Cs-137;Sr-90; hot particles			4-5 Gy and higher	Buds with necrotic apex. In 1986, all young shoots on pine trees died on the upper and lower crown parts.	MB	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990; Kozubov et.al., 1993.
P7-5	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident; 4 km to the west; trees 25-35-years old	Ce-144;Ru-106;Zr-95;Nb-95;Cs-134;Cs-137;Sr-90; hot particles			4-5 Gy and higher	At the bottom of shoots two buds were formed in the fall of 1986. One of the buds was normal, and the second bud had a long subulate form. Such long buds consisted of covering peels, and their apex was	MB	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990; Kozubov et.al., 1993.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
								fully necrotic.		
P7-6	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident; 4 km to the west; trees 25-35-years old	Ce-144;Ru-106;Zr-95;Nb-95;Cs-134;Cs-137;Sr-90; hot particles			(3-4) - (10-20) Gy	*Shoots with short growth.* In 1986, heavy reduction of growths of leading shoots occured.	MB	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990; Kozubov et.al., 1993.
P7-7	Trees	*Pinus sylvestris L. Scotch pine; Picea Link Spruce; Quercus L.; Sorbus aucuparia Field-ash; Tilia L. Linden; Acacia Willd. Acacia*	Area contaminated as a result of the Chernobyl accident; 4 km to the west; trees 25-35-years old	Ce-144;Ru-106;Zr-95;Nb-95;Cs-134;Cs-137;Sr-90; hot particles			(2-3) - (6-8) Gy	*Giganticm of leaf apparatus.* Increase of needles in the apical part of spruce shoots and in the basis of pine shoots was found. Increase of leafs accompained by changes in their form was revealed in oak trees, field-ash, linden, and locust. In 1988, marked tendency to needle gianticm was preserved.	MB	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990; Kozubov et.al., 1993.
P7-8	Trees	*Picea abies*	Area contaminated as a result of the	Ce-144;Ru-106;Zr-			3-10 Gy	*Deviation in histogenesis.* In exposured plants the	CG	Kozubov, Taskaev, 1994;

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Common spruce	Chernobyl accident; 4 km to the west; 7-25-years old spruces	95;Nb-95;Cs-134;Cs-137;Sr-90; hot particles				relative volumes of epidermis, hypodermis, aeriferous and crusted parenchyma increased; in the same time volume of phloem and xylem decreased. Increase in diameters of hypodermis cells was observed, also decrease in diameters of xylem, aeriferous and crusted parenchyma cells. In most cases, the radiation exposure resulted in accretion of mechanical tissues.		Kozubov, Taskaev, 1990; Kozubov et.al., 1993.
P7-9	Trees	*Picea abies Common spruce*	Area contaminated as a result of the Chernobyl accident; 4 km to the west; spruce trees 7-25-years old.	Ce-144;Ru-106;Zr-95;Nb-95;Cs-134;Cs-137;Sr-90; hot particles			3,5-4 Gy	Doses to spruce tress of 3,5-4 Gy and higher resulted in damage of stems formed in 1985. In 1986, most part of cells in cambium ring of such shoots died.	MT	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990; Kozubov et.al., 1993.
P7-10	Trees	*Picea abies Common spruce*	Area contaminated as a result of the Chernobyl accident; 4 km to the west; spruce trees 7-25-	Ce-144;Ru-106;Zr-95;Nb-95;Cs-134;Cs-			4-5 Gy	Doses to spruce trees of 4-5 Gy did not cause any substantial damage of cambium initialis; correct radial lines of xylem and	NE	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990; Kozubov et.al.,

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			years old.	137;Sr-90; hot particles				phloem cells were formed.		1993.
P8-1	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated in 1957 as a result of the Kyshtym accident. Mutations in cells of pine trees were studied. Number of trees analyzed - 30; total number of endosperms analyzed - 2188.	Sr-90 - Y-90		(2-15)E-5 Gy/day		Mutation frequency in fermental locus was 4,9E-3 per 1 locus. Rate of natural mutagenesis in fermental locus is (6,0-6,8)E-4 mutation per 1 gene.	CG	Kalchenko et.al.,1993; Kalchenko et.al., 1995; Kalchenko, Spirin,1989; Altukhov et.al., 1983.
P8-2	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident.Total number of trees analyzed - 60. Total number of analyzed endosperms - 400.	Cs-137	(0,2-20)E+6 Bq/m2		0,5-10 Gy	Mutation frequency in fermental locus in pines from the Chernobyl zone was 6,1E-3 per 1 locus. Rate of natural mutagenesis of fermental locus is (6,0-6,8)E-4 mutation per 1 gene.	CG	Kalchenko et.al.,1993; Kalchenko et.al., 1995; Kalchenko, Spirin,1989; Altukhov et.al., 1983.
P9-1	Trees	*Pinus sylvestris L. Scotch pine Pollen*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest at a distance 3,5 km	Cs-137, Sr-90, hot particles		(1,7-2,4)E-3 Gy/day	0,7-1,2 Gy	In 1987-1988, low pollen viability was observed. In 1987, it was 58,9±3,9% and in 1988 - 58,6±2,7% (in the control - 76,2±2,1% (1987) and 89,7±1,1%	MB	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			from the ChNPP. Total number of trees analyzed - 20. Trees were about 30 years old. Total number of pollen-grains were 6400 (in 1987), 8000 (in 1988) and 8000 (in 1989).					(1988)). In 1989, pollen viability was 82,1±2,3% (in the control 70,0±4,9%).		
P9-2	Trees	*Pinus sylvestris L. Scotch pine Pollen*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 6 km from NPP. In 1987,1988 and 1989 analyzed were 16,16 and 20 trees respectively. Trees were 60 years old. Total number of pollen-grains analyzed were 4400 (in 1987), 6400 (in 1988) and 8000 (in 1989).	Cs-137, Sr-90, hot particles		(5-6)E-3 Gy/day	2,5-3,0 Gy	In 1987-1988, pollen viability was the same as in the control. In 1987, it was 71,3±3,0% and in 1988 - 81,8±1,6% (in the control - 76,2±2,1% (1987) and 89,7±1,1% (1988)). In 1989, pollen viability was 79,6±2,2% (in the control 70,0±4,9%).	NE	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990.
P9-3	Trees	*Pinus*	Area contaminated	Cs-137, Sr-		(9,6-12)E-	5-8 Gy	In 1987, pollen viability	MB	Kozubov,

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		sylvestris L. Scotch pine Pollen	as a result of the Chernobyl accident. Experimental plot of pine forest at a distance 4 km from NPP. In 1987,1988 and 1989 numbers of trees analyzed were 7,17 and 20 respectively. Trees were 30 years old. Total number of pollen-grains analyzed were 2800 (in 1987), 6800 (in 1988) and 8000(in 1989).	90, hot particles		3 Gy/day		was 47,7±7,3% and in 1988 - 56,4±5,1% (in the control - 76,2±2,1% (1987) and 89,7±1,1% (1988)). In 1989 pollen viability was 63,8±5,4% (in the control 70,0±4,9%).		Taskaev, 1994; Kozubov, Taskaev, 1990.
P9-4	Trees	*Pinus sylvestris L. Scotch pine Pollen*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest at distance 1,2-1,5 km from ChNPP. Trees were 50-60 years old. Total number of pollen-grains analyzed -	Cs-137, Sr-90, hot particles		(0,48-0,6) Gy/day	20-25 Gy	High sterility of pollen grains (acute period). In 1989, pollen viability was 65,6±7,0% (in the control 70,0±4,9%).	MB	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			4000.							
P10-1	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest; 4 km from NPP.	Cs-137, Sr-90, hot particles		(9,6-12)E-3 Gy/day	5-8 Gy	In 1987, at the beginnig of formation of female gametophyte, 50% of seed-buds deteriorated by the end of meiosis (n=500). In October, 70% of seed-buds were necrotized (n=200).	MT	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990.
P10-2	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest; 6 km from NPP.	Cs-137, Sr-90, hot particles		(4,8-6,0)E-3 Gy/day	2,5-3,0 Gy	In 1987, at the beginnig of formation of female gametophyte 30% of seed-buds deteriorated by the end of meiosis (n=500). In October, 50% of seed-buds were necrotized (n=200). On the second year of growth, 75% seed-buds were necrotized (n=100).	MT	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990.
P10-3	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest; 3,5 km from NPP.	Cs-137, Sr-90, hot particles		(1,7-2,4)E-3 Gy/day	0,7-1,2 Gy	In October of 1987, about 5% of seed-buds were necrotized (n=200). On the second year, 20% seed-buds were necrotized (n=100).	MT	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990.
P11-1	Trees	*Pinus sylvestris L.*	Area contaminated as a result of the Chernobyl accident.	Cs-137, Sr-90, hot particles		(1,7-2,4)E-3 Gy/day	0,7-1,2 Gy	In 1986, average number of seeds in one cone was 18,61 (in the control -	REPR	Kozubov, Taskaev, 1994; Kozubov,

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Scotch pine	Experimental plot of pine forest; 3,5 km from NPP.					21,32). In 1987, it was 11,38 (in the control - 15,69). Since 1988, differences were statistically unreliable.		Taskaev, 1990.
P11-2	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest; 4 km from NPP.	Cs-137, Sr-90, hot particles		(9,6-12)E-3 Gy/day	5-8 Gy	In 1986, average number of seeds in one cone was 8,90 (in the control - 21,32). Since 1988 differences were statistically unreliable.	MB	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990.
P11-3	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 5 km from NPP.	Cs-137, Sr-90, hot particles		(2,4-3,0)E-2 Gy/day	10-12 Gy	In 1986, average number of seeds in one cone was 6,78 (in the control - 21,32). Since 1988 differences were statistically unreliable.	MB	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990.
P11-4	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 3,5 km from NPP.	Cs-137, Sr-90, hot particles		(1,7-2,4)E-3 Gy/day	0,7-1,2 Gy	In 1986, germination of seeds was 79% (in the control - 90,05%). Since 1988 differences were statistically unreliable.	REPR	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990.
P11-5	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 4	Cs-137, Sr-90, hot particles		(9,6-12)E-3 Gy/day	5-8 Gy	In 1986, germination of seeds was 33,6% (in the control - 90,05%).	MB	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			km from NPP.							
P11-6	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 5 km from NPP.	Cs-137, Sr-90, hot particles		(2,4-3,0)E-2 Gy/day	10-12 Gy	In 1986, germination of seeds was 3% (in the control - 90,05%).	MT	Kozubov, Taskaev, 1994; Kozubov, Taskaev, 1990.
P12-1	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident.	Hot particles UOx		(1,9-2,7)E-3 Gy/day	0,7-1,0 Gy	Stimulation of needles growth was observed. In 1986, mass of needles increased by a factor of 2 when compared with the year 1985 - 17,2 g in one shoot and 13,5 g, respectively.	STIM	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-2	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident.	Hot particles UOx		(4,0-5,5)E-3 Gy/day	1,5-2,0 Gy	Mass of needles in one shoot was not changed. In 1985, it was 10 g and 1986 - 9,9 g. Length of needles decreased - (43,9±2,2 mm - in 1986 and 51,8±2,2 mm - in 1985).	NE	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-3	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident.	Hot particles UOx		(8,2-11,0)E-3 Gy/day	3-4 Gy	In 1986 mass of needles per one shoot decreased when compared with the year 1985 - 5,9 g and 10,6 g, respectively.Average	MB	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
								length of needles decreased - (42,3±2,9 mm - in 1986 and 52,6±1,3 mm - in 1985).		
P12-4	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident.	Hot particles UOx		(1,9-2,7)E-3 Gy/day	0,7-1,0 Gy	In 1987, mass of needles increased by 15% (19,5 g in 1987 and 17,2 in 1986). Length of needles increased - (54,2±2,5 mm - in 1986 and 60,7±1,9 mm - in 1987). In 1988-1991 increasing of length and mass of shoots was observed.	REPR	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-5	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident.	Hot particles UOx		(4,0-5,5)E-3 Gy/day	1,5-2,0 Gy	In 1987, mass of needles increased by 46% (14,6 g in 1987 and 9,9 in 1986). Length of needles increased - (43,9±2,2 mm - in 1986 and 57,7±2,6 mm - in 1987). In 1988-1991, increasing of length and mass of shoots was observed.	REPR	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-6	Trees	*Pinus sylvestris L. Scotch*	Area contaminated as a result of the Chernobyl accident.	Hot particles UOx		(8,2-11,0)E-3 Gy/day	3-4 Gy	In 1987, mass of needles increased by 290% comparing with the previous year (17 g in	REPR	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov,

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		pine						1987 and 5,9 in 1986). Length of needles increased - (42,3±2,9 mm - in 1986 and 70,9±2,4 mm - in 1987). In 1988-1991, increasing of length and mass of shoots was observed.		1972.
P12-7	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Age of pines was 50-60 years.	Hot particles UOx		(5,5-6,8)E-2 Gy/day	20-25 Gy	In 1986 central shoots and all needles died.	MT	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-8	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Age of pines was 50-60 years.	Hot particles UOx		(5,5-6,8)E-2 Gy/day	20-25 Gy	In 1987, length of needles increased by a factor of 2 when compared with normal (102,9±6,1 mm in 1987 and 56,5±2,5 mm in 1985). In 1988, mass of needles increased by a factor of 4 when compared with 1987 (26,3 g in 1988 and 6,6 g in 1987).	REPR	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-9	Trees	*Picea abies Common spruce*	Area contaminated as a result of the Chernobyl accident. Age of spruces was	Hot particles UOx		(4,7-6,0)E-3 Gy/day	1,7-2,2 Gy	In 1986, mass of needles decreased by 75% when compared with the year 1985 -(0,9±0,1) g and	MB	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov,

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			40 years.					(1,2±0,1) g, respectively. Length of needles decreased - (14,9±0,4 mm - in 1986 and 19,8±0,8 mm - in 1985).		1972.
P12-10	Trees	*Picea abies Common spruce*	Area contaminated as a result of the Chernobyl accident. Age of spruces was 40 years.	Hot particles UOx		(4,7-6,0)E-3 Gy/day	1,7-2,2 Gy	In 1987, length of needles increased when compared with 1986 (26,6±1,0 mm in 1987 and 14,9±0,4 mm in 1986). Since 1988 differences of needle length were statistically unreliable.	REPR	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-11	Trees	*Picea abies Common spruce*	Area contaminated as a result of the Chernobyl accident. Age of spruces was 40 years.	Hot particles UOx		(1,9-2,7)E-3 Gy/day	0,7-1,0 Gy	In 1986, length of needles decreased by 9% when compared with year 1985 (12,7±0,5 mm in 1986 and 15,9±0,5 mm in 1985).	MB	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-12	Trees	*Picea abies Common spruce*	Area contaminated as a result of the Chernobyl accident. Age of spruces was 40 years.	Hot particles UOx		(4,0-5,5)E-3 Gy/day	1,5-2,0 Gy	In 1986, average length of needles decreased by 25% when compared with year 1985 (10,5±0,4 mm in 1986 and 14,3±0,4 mm in 1985).	MB	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-13	Trees	*Picea abies Common spruce*	Area contaminated as a result of the Chernobyl accident. Age of spruces was	Hot particles UOx		(8,2-11,0)E-3 Gy/day	3,0-4,0 Gy	In 1986, average length of needles decreased by 25% when compared with year 1985 (12,6±0,6 mm in	MB	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov,

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			40 years.					1986 and 13,6±0,6 mm in 1985).		1972.
P12-14	Trees	*Picea abies Common spruce*	Area contaminated as a result of the Chernobyl accident. Age of spruces was 40 years.	Hot particles UOx		(4,0-5,5)E-3 Gy/day	3,0-4,0 Gy	In 1987, reparation processes at spruce were observed. Average length of needles was 28,0±1,4 mm in 1987 and 13,6±0,6 mm in 1985. Since 1988, differences of needle length were statistically unreliable.	REPR	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-15	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident.	Hot particles UOx		(1,1-1,4)E-2 Gy/day	4-5 Gy	In 1987, needles on the pines were gigantic. Number of thilockoides in grains was higher then in the control (4,74±0,20 in 1987 and 3,20±0,20 in the control).	MB	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-16	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident.	Hot particles UOx		(1,9-2,7)E-3 Gy/day	0,7-1,0 Gy	Number of chloroplasts in grains were lower then those in the control (in 1986 (13,0±1,0) and (16,7±0,8) in the control).	CG	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-17	Trees	*Picea abies Common spruce*	Area contaminated as a result of the Chernobyl accident. Age of spruces was 7,10 and 25 years.	Hot particles UOx		(2,7-4,0)E-3 Gy/day	1,0-1,5 Gy	Number of chloroplasts in grains were higher then those in the control (in 1986 (16,68±1,3) and (13,53±0,8) in the control).	CG	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
P12-18	Trees	*Picea abies Common spruce*	Area contaminated as a result of the Chernobyl accident. Age of spruces was 7,10 and 25 years.	Hot particles UOx		(2,7-4,0)E-3 Gy/day	1,0-1,5 Gy	Numbers of grains in chloroplast were lower then those in the control (in 1986 (10,23±0,5) and (13,0±1,0) in the control).	CG	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P12-19	Trees	*Picea abies Common spruce*	Area contaminated as a result of the Chernobyl accident. Age of spruces was 7,10 and 25 years.	Hot particles UOx		(9,6-11,0)E-3 Gy/day	3,5-4,0 Gy	In 1986, number of chloroplasts were lower then those in the control (in 1986 (13,44±1,0) and (20,04±1,2) in the control).	CG	Ladanova, 1994; Karaban' et.al., 1979; Tikhomirov, 1972.
P13-1	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 5,5 km from NPP to the south-west.	Hot particles UOx	(2-6)E+5 Bq/m2	(1,0-1,2)E-2 Gy/day		In 15 trees from 18 analysed, the leading shoots of 1986 were short. In 2 samples from 18, the leading shoots of 1986 died. One tree hadn't at all the leading shoot of 1986. In 14 trees from 18 studied, t the lateral shoots of 1986 were absent. In all trees studied there were no lateral shoots of 1986 in the lower crown parts.	MB	Abaturov et.al., 1996; Karaban' et.al, 1977.
P13-2	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 5,8	Hot particles UOx	(2-6)E+5 Bq/m2	(8,4-9,6)E-3 Gy/day		In 5 samples from 9 analyzed the leading shoots of 1986 were short. In 3 samples the leading shoot of 1986 died. In 4	MB	Abaturov et.al., 1996; Karaban' et.al, 1977.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			km from NPP to the south-west.					samples the lateral shoots of 1986 in the upper crown part were short. 5 samples hadn't the lateral shoot of 1986. 8 trees hadn't the lateral shoot of 1986 in the middle crown part. 9 trees hadn't the lateral shoot of 1986 in the lower crown part.		
P13-3	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 5,95 km from NPP to the south-west.	Hot particles UOx	(2-6)E+5 Bq/m2	(5,0-6,5)E-3 Gy/day		In 9 samples from 12 analyzed, the leading shoot of 1986 was short. In 8 samples, the lateral shoots of 1986 in the upper crown part were short.	MB	Abaturov et.al., 1996; Karaban' et.al, 1977.
P13-4	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 6,1 km from NPP to the south-west.	Hot particles UOx	(2-6)E+5 Bq/m2	(5,0-6,5)E-3 Gy/day		In 8 samples from 13 studied, the leading shoot of 1986 was short. In 6 samples the lateral shoots of 1986 in the upper crown part were short. In 6 samples the lateral shoots of 1986 in the middle crown part were short.	MB	Abaturov et.al., 1996; Karaban' et.al, 1977.
P14-1	Trees	*Pinus sylvestris*	Area contaminated as a result of the	Hot particles UOx	(2-6)E+5 Bq/m2	(1,0-1,2)E-2		In 1 samples from 18 analyzed, all needles of	MB	Abaturov et.al., 1996; Karaban'

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		L. Scotch pine	Chernobyl accident. Experimental plot of pine forest in 5,5 km from NPP to the south-west.			Gy/day		1984 and 1985 on the growth of 1987 were dark-brown.		et.al, 1977.
P14-2	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 5,8 km from NPP to the south-west.	Hot particles UOx	(2-6)E+5 Bq/m2	(8,4-9,6)E-3 Gy/day		In 7 samples from 9 analyzed, all needles of 1984 and 1985 on the growth of 1987 were fully yellow.	MB	Abaturov et.al., 1996; Karaban' et.al, 1977.
P14-3	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 5,95 km from NPP to the south-west.	Hot particles UOx	(2-6)E+5 Bq/m2	(5,0-6,5)E-3 Gy/day		In 2 samples from 12 studied, the needles of 1984 and 1985 on the growth of 1987 in the middle crown part were fully yellow.	MB	Abaturov et.al., 1996; Karaban' et.al, 1977.
P14-4	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 6,1 km from NPP to the south-west.	Hot particles UOx	(2-6)E+5 Bq/m2	(5,0-6,5)E-3 Gy/day		In 3 samples from 13 analyzed, the needles of 1984 and 1985 on the growth of 1987 were fully yellow.	MB	Abaturov et.al., 1996; Karaban' et.al, 1977.
P14-5	Trees	*Pinus sylvestris*	Area contaminated as a result of the	Hot particles UOx	(2-6)E+5 Bq/m2	(2,0-3,6)E-3		In 1 samples from 13 analyzed, the needles of	MB	Abaturov et.al., 1996; Karaban'

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		L. Scotch pine	Chernobyl accident. Experimental plot of pine forest in 6,4 km from NPP to the south-west.			Gy/day		1984 and 1985 in the crown were yellow. In 6 samples the needles of 1984 and 1985 on the growth of 1987 in the middle crown part were fully yellow.		et.al, 1977.
P14-6	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Experimental plot of pine forest in 7 km from NPP to the south-west.	Hot particles UOx	(2-6)E+5 Bq/m2	(2,0-3,6)E-3 Gy/day		In 6 samples from 15 studied, the needles of 1984 and 1985 on the growth of 1987 in the crown were fully yellow.	MB	Abaturov et.al., 1996; Karaban' et.al, 1977.
P15-1	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. June, 1988.	Hot particles UOx	(2-6)E+5 Bq/m2	(2,0-3,6)E-3 Gy/day		On the pines with strongly damaged crowns, numbers of alive shoots decreased by 24% due to bark beetles (*Tomicus(Blastophagus) piniperda L.).*In autumn, 1988 and spring 1989-1990, enhanced of injury of shoots by bark beetles were not observed.	ECOL	Abaturov et.al., 1996; Abaturov, 1990; Abaturov et.al,1990.
P15-2	Trees	*Pinus sylvestris L.*	Area contaminated as a result of the Chernobyl accident.	Hot particles UOx	(2-6)E+5 Bq/m2	(2,0-3,6)E-3 Gy/day		In autumn 1988, numbers of *Aradus cinnamomeus Panz.* increased in the	ECOL	Abaturov et.al., 1996; Abaturov, 1990; Abaturov

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Scotch pine	June, 1988.					area. Individual trees had yellow needles on the end of branches. This was typical sign of damages caused by *Aradus cinnamomeus Panz.* Numbers of Aradus cinnamomeus Panz. exceeded 10 spec/dm2 (up to 40 spec/dm2). On the health trees damages caused by Aradus cinnamomeus Panz. were not observed.		et.al,1990.
P16-1	Herbaceous	*Arabidopsis thaliana (L.) Heynh.*	Area contaminated as a result of the Chernobyl accident. Experimental plot located near the settlement Tolsty Les. Total number of analyzed plants was 55. 1987.	Cs-137, Sr-90, hot particles		6,0E-4 Gy/day		Mutant plants amounted to 27,3±6,0% of analyzed plants. Spontaneous level of mutations in natural non-exposed populations is (1-5)%.	CG	Abramov et.al, 1995.
P16-2	Herbaceous	*Arabidopsis thaliana (L.) Heynh.*	Area contaminated as a result of the Chernobyl accident. Experimental plot located near the	Cs-137, Sr-90, hot particles		4,0E-3 Gy/day		Mutant plants amounted to 42,0±7,0%. Spontaneous level of mutations in nature non-exposed populations is (1-5)%.	CG	Abramov et.al, 1995.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			settlement Shepelichi. Total number of analyzed plants was 50. 1987.							
P16-3	Herbaceous	*Arabidopsis thaliana (L.) Heynh.*	Area contaminated as a result of the Chernobyl accident. Experimental plot located near the settlement Yanov-4. Total number of analyzed plants was 52. 1987.	Cs-137, Sr-90, hot particles		5,8E-2 Gy/day		Number of mutant plants was 80,8±5,4%. Spontaneous level of mutations in natural non-exposed populations is (1-5)%.	CG	Abramov et.al, 1995.
P16-4	Herbaceous	*Arabidopsis thaliana (L.) Heynh.*	Area contaminated as a result of the Chernobyl accident. Experimental plot located near the settlement Yanov-6. Total number of analyzed plants was 60. 1988.	Cs-137, Sr-90, hot particles		3,1E-2 Gy/day	7,88 Gy/year (1989).	Number of mutant plants was 78,3±5,3%. Spontaneous level of mutations in nature non-exposed populations is (1-5)%.	CG	Abramov et.al, 1995.
P16-5	Herbaceous	*Arabidopsis thaliana (L.) Heynh.*	Area contaminated as a result of the Chernobyl accident. Experimental plot located near the	Cs-137, Sr-90, hot particles		2,4E-3 Gy/day	0,79 Gy/year (1989).	Number of mutant plants was 44,2±6,7%. Spontaneous level of mutations in nature non-exposed populations is (1-	CG	Abramov et.al, 1995.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			settlement Shepelichi. Total number of analyzed plants was 52. 1988.					5)%.		
P16-6	Herbaceous	*Arabidopsis thaliana (L.) Heynh.*	Area contaminated as a result of the Chernobyl accident. Experimental plot located near the settlement Tolsty Les. Total number of analyzed plants was 100. 1988.	Cs-137, Sr-90, hot particles		4,8E-4 Gy/day	0,12 Gy/year (1989).	Number of mutant plants was 47,0±5,0%. Spontaneous level of mutations in nature non-exposed populations is (1-5)%.	CG	Abramov et.al, 1995.
P16-7	Herbaceous	*Arabidopsis thaliana (L.) Heynh.*	Area contaminated as a result of the Chernobyl accident. Experimental plot located near the settlement Tolsty Les. Total number of analyzed plants was 100. 1989.	Cs-137, Sr-90, hot particles		3,4E-4 Gy/day	0,12 Gy/year (1989).	Number of mutant plants was 4,0±2,0%. Spontaneous level of mutations in nature non-exposed populations is (1-5)%. Next years number of mutant plants not decreased.	CG	Abramov et.al, 1995.
P16-8	Herbaceous	*Arabidopsis thaliana (L.) Heynh.*	Area contaminated as a result of the Chernobyl accident. Experimental plot located near the	Cs-137, Sr-90, hot particles		2,2E-3 Gy/day	0,79 Gy/year (1989).	Number of mutant plants was 25,5±2,9%. Spontaneous level of mutations in nature non-exposed populations is (1-	CG	Abramov et.al, 1995.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			settlement Shepelichi. Total number of analyzed plants was 55. 1989.					5)%. Next years numbers of mutant plants decreased.		
P16-9	Herbaceous	*Arabidopsis thaliana (L.) Heynh.*	Area contaminated as a result of the Chernobyl accident. Experimental plot located near the settlement Yanov-6. Total number of analyzed plants was 60. 1988.	Cs-137, Sr-90, hot particles		2,2E-2 Gy/day	7,88 Gy/year (1989).	Number of mutant plants was 40,0±4,9%. Spontaneous level of mutations in nature non-exposed populations is (1-5)%. Next years numbers of mutant plants decreased.	CG	Abramov et.al, 1995.
P17-1	Herbaceous	*Dactylis glomerata L. Cocksfoot*	Area contaminated as a result of the Chernobyl accident. 1986.	Hot particles UOx		1,9E-2 Gy/day		In 1986, seed germination of Dactylis glomerata L. was 3,7±0,9. Total number of seeds studied was 1000.	MB	Shershunova, Zainullin, 1995; Shershunova et.al.,1993.
P17-2	Herbaceous	*Dactylis glomerata L. Cocksfoot*	Area contaminated as a result of the Chernobyl accident. 1986.	Hot particles UOx		(4,8-6,0)E-2 Gy/day	> 20 Gy	In 1986, none of the 300 seeds sprouted up.	MT	Shershunova, Zainullin, 1995; Shershunova et.al.,1993.
P17-3	Herbaceous	*Dactylis glomerata L. Cocksfoo*	Area contaminated as a result of the Chernobyl accident. 1988.	Cs-137, Sr-90, hot particles		(1,7-2,9)E-3 Gy/day (in 1988)	4,2-5,5 Gy (in 1986)	In 1988, none of the 1000 seeds spouted up.	MT	Shershunova, Zainullin, 1995; Shershunova et.al.,1993.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		t								
P17-4	Herbaceous	*Dactylis glomerata L. Cocksfoot*	Area contaminated as a result of the Chernobyl accident. 1988.	Cs-137, Sr-90, hot particles		(2,4-4,8)E-5 Gy/day (in 1988)		In 1988, seed germination was 20,7%. Total number of seeds studied was 1000.	REPR	Shershunova, Zainullin, 1995; Shershunova et.al.,1993.
P17-5	Herbaceous	*Dactylis glomerata L. Cocksfoot*	Area contaminated as a result of the Chernobyl accident. 1989.	Cs-137, Sr-90, hot particles		(4,8-1440)E-6 Gy/day		In 1988, germination of seeds varied from 0,7±0,3% to (13,0±1,2)%. Total number of seeds analyzed was 1000.	REPR	Shershunova, Zainullin, 1995; Shershunova et.al.,1993.
P17-6	Herbaceous	*Dactylis glomerata L. Cocksfoot*	Area contaminated as a result of the Chernobyl accident. 1987.	Cs-137, Sr-90, hot particles		(1-3)E-2 Gy/day		In 1987, a peak of chlorophyll mutations was observed. Mutation frequency was (1,04 - 1,80)%.	CG	Shershunova, Zainullin, 1995; Shershunova et.al.,1993.
P18-1	Herbaceous	*Crepis tectorum L.*	Area contaminated as a result of the Chernobyl accident. 1988-1989.	Cs-137, Sr-90, hot particles		(1,2-1,7)E-4 Gy/day (1988); 1,2E-5 Gy/day (1989)		In 1988, germination of seeds was 38,3±2,4% (in the control 51,1±1,7%). In 1989, germination of seeds was 42,8±3,4% (in the control 47,3±1,3%).	REPR	Shevchenko et.al., 1995.
P18-2	Herbaceous	*Crepis tectorum L.*	Area contaminated as a result of the Chernobyl accident. 1988-1989.	Cs-137, Sr-90, hot particles		(1,7-2,2)E-3 Gy/day (1988); 1,7E-3 Gy/day		In 1988, germination of seeds was 53,2±2,7% (in the control 51,1±1,7%). In 1989, germination of seeds was 37,8±4,7% (in the control 47,3±1,3%).	REPR	Shevchenko et.al., 1995.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
						(1989).				
P18-3	Herbaceous	*Crepis tectorum L.*	Area contaminated as a result of the Chernobyl accident. 1988-1989.	Cs-137, Sr-90, hot particles		(1,4-1,9)E-2 Gy/day (1988); (1,2-1,7)E-2 Gy/day (1989).		In 1988, germination of seeds was 40,1±1,2% (in the control 51,1+1,7%). In 1989, germination of seeds was 46,4±2,0% (in the control 47,3±1,3%).	REPR	Shevchenko et.al., 1995.
P18-4	Herbaceous	*Crepis tectorum L.*	Area contaminated as a result of the Chernobyl accident. 1988-1989. Population of Crepis tectorum L. was irradiated by acute gamma-radiation with dose 20 Gy.	Cs-137, Sr-90, hot particles		1,8E-2 Gy/day		A frequency of cells with chromosomal aberrations induced by acute irradiation was 8,2±0,6% (in the control 10,4±0,5%). Total number of cells studied was 2159 (in the control - 3598).	CG	Shevchenko et.al., 1995.
P18-5	Herbaceous	*Crepis tectorum L.*	Area contaminated as a result of the Chernobyl accident. 1988-1989.	Cs-137, Sr-90, hot particles		(1,2-1,7)E-4 Gy/day (1988); 1,2E-5 Gy/day (1989).		In 1988, a frequency of karyotypic changes was 2,9±1,7% (in the control - 0%). In 1989, a frequency of karyotypic changes was 3,7±2,1% (in the control - 0,3±0,2%).	CG	Shevchenko et.al., 1995.
P18-6	Herbaceous	*Crepis tectorum L.*	Area contaminated as a result of the Chernobyl accident. 1988-1989.	Cs-137, Sr-90, hot particles		(1,7-2,2)E-3 Gy/day (1988); 1,7E-3		In 1988, a frequency of karyotypic changes was 6,2±2,3% (in the control - 0%). In 1989, a frequency	CG	Shevchenko et.al., 1995.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
						Gy/day (1989).		of karyotypic changes was 4,5±2,2% (in the control - 0,3±0,2%).		
P18-7	Herbaceous	*Crepis tectorum L.*	Area contaminated as a result of the Chernobyl accident. 1988-1989.	Cs-137, Sr-90, hot particles		(1,4-1,9)E-2 Gy/day (1988); (1,2-1,7)E-2 Gy/day(1989).		In 1988, a frequency of karyotypic changes was 1,3±0,6% (in the control - 0%). In 1989, a frequency of karyotypic changes was 1,7±0,8% (in the control - 0,3±0,2%).	CG	Shevchenko et.al., 1995.
P19-1	Herbaceous	*Centaurea scabiosa L. Centaury scabiose*	Area contaminated in 1957 as a result of the Kyshtym accident.	Sr-90 - Y-90	5E+6 Bq/m2	3,7E-5 Gy/day	0,4 Gy	In 1966, number of cells with chromosomal aberrations in the first mitosis of seed germs was 125% of the control.	CG	Kalchenko et.al., 1995; Kalchenko et.al., 1983.
P19-2	Herbaceous	*Centaurea scabiosa L. Centaury scabiose*	Area contaminated in 1957 as a result of the Kyshtym accident.	Sr-90 - Y-90	60E+6 Bq/m2	4,6E-4 Gy/day	5,0 Gy	In 1966, number of cells with chromosomal aberrations in the first mitosis of seed germs was 150% of the control.	CG	Kalchenko et.al., 1995; Kalchenko et.al., 1983.
P19-3	Herbaceous	*Centaurea scabiosa L. Centaury scabiose*	Area contaminated in 1957 as a result of the Kyshtym accident.	Sr-90 - Y-90	140E+6 Bq/m2	7,8E-4 Gy/day	8,5 Gy	In 1966, number of cells with chromosomal aberrations in the first mitosis of seed germs was 175% of the control.	CG	Kalchenko et.al., 1995; Kalchenko et.al., 1983.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
P19-4	Herbaceous	*Centaurea scabiosa L. Centaury scabiose*	Area contaminated in 1957 as a result of the Kyshtym accident. Population of Centaurea scabiosa L. was additionally irradiated by acute gamma-radiation with dose 10 Gy.	Sr-90 - Y-90	5E+6 Bq/m2	3,7E-5 Gy/day	0,4 Gy	Higher radioresistance of chronically irradiated seeds was observed compared with the control population . Percentage r of cells with chromosomal aberrations in the first mitosis of seed germs was 30% (in the control - 43%).	CG	Kalchenko et.al., 1995; Kalchenko et.al., 1983.
P19-5	Herbaceous	*Centaurea scabiosa L. Centaury scabiose*	Area contaminated in 1957 as a result of the Kyshtym accident. Population of Centaurea scabiosa L. was additionally irradiated by acute gamma-radiation with dose 10 Gy.	Sr-90 - Y-90	60E+6 Bq/m2	4,6E-4 Gy/day	5,0 Gy	Higher radioresistance of chronically irradiated seeds was observed compared with the control population. Percentage of cells with chromosomal aberrations in the first mitosis of seed germs was 27% (in the control - 43%).	CG	Kalchenko et.al., 1995; Kalchenko et.al., 1983.
P19-6	Herbaceous	*Centaurea scabiosa L. Centaury scabiose*	Area contaminated in 1957 as a result of the Kyshtym accident. Population of Centaurea scabiosa L. was additionally irradiated by acute	Sr-90 - Y-90	140E+6 Bq/m2	7,8E-4 Gy/day	8,5 Gy	Higher radioresistance of chronically irradiated seeds was observed compared with the control population. Percentage of cells with chromosomal aberrations in the first mitosis of seed germs was	CG	Kalchenko et.al., 1995; Kalchenko et.al., 1983.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			gamma-radiation with dose 10 Gy.					18% (in the control - 43%).		
P19-7	Herbaceous	*Centaurea scabiosa L. Centaury scabiose*	Area contaminated in 1957 as a result of the Kyshtym accident.	Sr-90 - Y-90	60E+6 Bq/m2	4,6E-4 Gy/day	5,0 Gy	Number of chlorophyll mutations was by a factor of 3,2 higher then the control values (0,48±0,13% and 0,15±0,07% - in the control).	CG	Kalchenko et.al., 1995; Kalchenko et.al., 1983.
P19-8	Herbaceous	*Centaurea scabiosa L. Centaury scabiose*	Area contaminated in 1957 as a result of the Kyshtym accident.	Sr-90 - Y-90	140E+6 Bq/m2	7,8E-4 Gy/day	8,5 Gy	Number of chlorophyll mutations was by a factor of 14,5 higher then the control values (2,17±0,26% and 0,15±0,07% - in the control).	CG	Kalchenko et.al., 1995; Kalchenko et.al., 1983.
P19-9	Herbaceous	*Centaurea scabiosa L. Centaury scabiose*	Area contaminated in 1957 as a result of the Kyshtym accident.	Sr-90 - Y-90	5E+6 Bq/m2	3,7E-5 Gy/day	0,4 Gy	Mutation frequency in Lap locus in populations of Centaurea scabiosa L. was 7,8E-3 per 1 locus (in the control - 5,4E-4/ locus).	CG	Kalchenko et.al., 1995; Kalchenko et.al., 1983.
P19-10	Herbaceous	*Centaurea scabiosa L. Centaury scabiose*	Area contaminated in 1957 as a result of the Kyshtym accident.	Sr-90 - Y-90	60E+6 Bq/m2	4,6E-4 Gy/day	5,0 Gy	Mutation frequency in Lap locus in populations of Centaurea scabiosa L. was 40E-3 per 1 locus (in the control - 5,4E-4/ locus).	CG	Kalchenko et.al., 1995; Kalchenko et.al., 1983.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
P19-11	Herbaceous	*Centaurea scabiosa L. Centaury scabiose*	Area contaminated in 1957 as a result of the Kyshtym accident.	Sr-90 - Y-90	140E+6 Bq/m2	7,8E-4 Gy/day	8,5 Gy	Mutation frequency in Lap locus in populations of Centaurea scabiosa L. was 66E-3 per 1 locus (in the control - 5,4E-4/ locus).	CG	Kalchenko et.al., 1995; Kalchenko et.al., 1983.
P20-1	Herbaceous	*Crepis tectorum L.*	Area contaminated as a result of the Chernobyl accident (Bryansk region). July,1992. Total number of germs studied was 52. Total number of cells analyzed was 1017.	Cs-137, Sr-90.		(3,6-4,8)E-3 Gy/day (1992) in 7 years after the acute irradiation		Numbers of cells with chromosomal aberrations were 1,6±0,4% (in the control 0,1%).	CG	Shevchenko, Grinikh, 1995; Shevchenko et.al., 1995.
P20-2	Herbaceous	*Crepis tectorum L.*	Area contaminated as a result of the Chernobyl accident (Bryansk region). July,1992. Total number of germs studied was 32. Total number of cells analyzed was 926.	Cs-137, Sr-90.		(3,6-4,8)E-2 Gy/day (1992) in 7 years after the acute irradiation		Numbers of cells with chromosomal aberrations were 5,2±0,7% (the control 0,1%).	CG	Shevchenko, Grinikh, 1995; Shevchenko et.al., 1995.
P20-3	Herbaceous	*Crepis tectorum*	Area contaminated as a result of the	Cs-137, Sr-90.		(4,0-6,0)E-2 Gy/day		Numbers of cells with chromosomal aberrations	CG	Shevchenko, Grinikh, 1995;

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		L.	Chernobyl accident (Bryansk region). July,1992. Total number of germs studied was 62. Total number of cells analyzed was 1209.			(1992) in 7 years after the acute irradiation		were 2,7±0,5% (the control 0,1%).		Shevchenko et.al., 1995.
P20-4	Herbaceous	*Crepis tectorum L.*	Area contaminated as a result of the Chernobyl accident (Bryansk region). July,1992. Total number of germs studied was 55. Total number of cells analyzed was 826.	Cs-137, Sr-90.		(6,0-7,2)E-2 Gy/day (1992) in 7 years after the acute irradiation		Numbers of cells with chromosomal aberrations were 0,7±0,3% (control 0,1%).	CG	Shevchenko, Grinikh, 1995; Shevchenko et.al., 1995.
P21-1	Herbaceous	*Fragaria vesca L. Wild strawberry*	Area contaminated as a result of the Chernobyl accident (Bryansk region). Total number of germs studied was 137. Total number of cells analyzed was 606. 1992.	Cs-137, Sr-90.		(2,2-18,3)E-7 Gy/day (1992) in 7 years after the acute irradiation	(5-40)E-4 Gy	Numbers of cells with chromosomal aberrations were 0,2±0,2% (the control 0,1%).	CG	Shevchenko et.al., 1996.
P21-2	Herbaceo	*Hypocho*	Area contaminated	Cs-137, Sr-		(2,2-	(5-40)E-4	Numbers of cells with	CG	Shevchenko et.al.,

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
	us	*eris radicata L.*	as a result of the Chernobyl accident (Bryansk region). Total number of germs studied was 46. Total number of cells analyzed was 1640. 1992.	90.		18,3)E-7 Gy/day (1992) in 7 years after the acute irradiation	Gy	chromosomal aberrations were 0,6±0,2% (control 0,1%).		1996.
P21-3	Herbaceous	*Genista pilosa L. Genista*	Area contaminated as a result of the Chernobyl accident (Bryansk region). Total number of germs studied was 126. Total number of cells analyzed was 1971. 1992.	Cs-137, Sr-90.		(2,2-18,3)E-7 Gy/day (1992) in 7 years after the acute irradiation	(5-40)E-4 Gy	Numbers of cells with chromosomal aberrations were 0,2±0,1% (the control 0,1%).	CG	Shevchenko et.al., 1996.
P21-4	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident (Bryansk region). Total number of germs studied was 14. Total number of cells analyzed was 1796. 1992.	Cs-137, Sr-90.		(2,2-18,3)E-7 Gy/day (1992) in 7 years after the acute irradiation	(5-40)E-4 Gy	Numbers of cells with chromosomal aberrations were 0,2±0,1% (the control 0,1%).	CG	Shevchenko et.al., 1996.
P21-5	Herbaceous	*Fragaria vesca L.*	Area contaminated as a result of the	Cs-137, Sr-90.		(2,3-3,5)E-6 Gy/day	(50-76)E-4 Gy	Numbers of cells with chromosomal aberrations	CG	Shevchenko et.al., 1996.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Wild strawberry	Chernobyl accident (Bryansk region). Total number of germs studied was 129. Total number of cells analyzed was 1365. 1992.			(1992) in 7 years after the acute irradiation		were 0,1±0,1% (the control 0,1%).		
P21-6	Herbaceous	*Hypochoeris radicata L.*	Area contaminated as a result of the Chernobyl accident (Bryansk region). Total number of germs studied was 42. Total number of cells analyzed was 1572. 1992.	Cs-137, Sr-90.		(2,3-3,5)E-6 Gy/day (1992) in 7 years after the acute irradiation	(50-76)E-4 Gy	Numbers of cells with chromosomal aberrations were 0,6±0,2% (the control 0,1%).	CG	Shevchenko et.al., 1996.
P21-7	Herbaceous	*Genista pilosa L. Genista*	Area contaminated as a result of the Chernobyl accident (Bryansk region). Total number of germs studied was 40. Total number of cells analyzed was 525. 1992.	Cs-137, Sr-90.		(2,3-3,5)E-6 Gy/day (1992) in 7 years after the acute irradiation	(50-76)E-4 Gy	Numbers of cells with chromosomal aberrations were 0,6±0,3% (the control 0,1%).	CG	Shevchenko et.al., 1996.
P21-8	Trees	*Pinus sylvestris L. Scotch*	Area contaminated as a result of the Chernobyl accident	Cs-137, Sr-90.		(2,3-3,5)E-6 Gy/day (1992) in 7	(50-76)E-4 Gy	Numbers of cells with chromosomal aberrations were 0,4±0,1% (the	CG	Shevchenko et.al., 1996.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		pine	(Bryansk region). Total number of germs studied was 50. Total number of cells analyzed was 5973. 1992.			years after the acute irradiation		control 0,1%).		
P21-9	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Total number of cells was 1128. 1987.	Cs-137, Sr-90, hot particles		(1,4-2,7)E-3 Gy/day	0,5-1,0 Gy	Numbers of chromosomal aberrations in pine seeds was 1,5±0,3% (the control 1,0±0,4%).	CG	Shevchenko et.al., 1996.
P21-10	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident . Total number of cells was 563. 1987.	Cs-137, Sr-90, hot particles		(5,5-6,8)E-3 Gy/day	2,0-2,5 Gy	Number of chromosomal aberrations in pine seeds was 2,1±0,6% (the control 1,0±0,4%).	CG	Shevchenko et.al., 1996.
P21-11	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Total number of cells was 692. 1987.	Cs-137, Sr-90, hot particles		(1,4-2,1)E-2 Gy/day	5,0-7,5 Gy	Number of chromosomal aberrations in pine seeds was 4,3±0,7% (the control 1,0±0,4%).	CG	Shevchenko et.al., 1996.
P21-12	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated as a result of the Chernobyl accident. Total number of	Cs-137, Sr-90, hot particles		2,7E-2 Gy/day	10 Gy	Number of chromosomal aberrations in pine seeds was 7,2±1,0% (the control 1,0±0,4%).	CG	Shevchenko et.al., 1996.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			cells was 690. 1987.							
P22-1	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Total number of cells was 895. July, 1995.	Sr-90 - Y-90	1,85E+5 Bq/m2	5,5E-6 Gy/day		Frequency of chromosome aberrations (metaphase analysis) in Crepis tectorum L. populations was 0,78±0,29% (the control 0,01±0,05%).	CG	Shevchenko et.al., 1998.
P22-2	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Total number of cells was 655. July, 1995.	Sr-90 - Y-90	3,7E+6 Bq/m2	9,6E-5 Gy/day		Frequency of chromosome aberrations (metaphase analysis) in Crepis tectorum L. populations was 0,46±0,26% (the control 0,01±0,05%).	CG	Shevchenko et.al., 1998.
P22-3	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Total number of cells was 1367. July, 1995.	Sr-90 - Y-90	7,4E+6 Bq/m2	2,0E-4 Gy/day		Frequency of chromosome aberrations (metaphase analysis) in Crepis tectorum L. populations was 0,59±0,21% (the control 0,01±0,05%).	CG	Shevchenko et.al., 1998.
P22-4	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Total number of cells was 1392. July, 1995.	Sr-90 - Y-90	9,25E+6 Bq/m2	2,4E-4 Gy/day		Frequency of chromosome aberrations (metaphase analysis) in Crepis tectorum L. populations was 0,50±0,19% (the control 0,01±0,05%).	CG	Shevchenko et.al., 1998.
P22-5	Herbaceous	*Crepis tectorum*	Area contaminated in 1957 as a result	Sr-90 - Y-90	1,85E+7 Bq/m2	4,8E-4 Gy/day		Frequency of chromosome aberrations (metaphase	CG	Shevchenko et.al., 1998.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		L.	of the Kyshtym accident. Total number of cells was 1174. July, 1995.					analysis) in Crepis tectorum L. populations was1,45±0,35% (the control 0,01±0,05%).		
P22-6	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Total number of cells was 808. July, 1995.	Sr-90 - Y-90	1,85E+7 Bq/m2	5,5E-6 Gy/day		Frequency of chromosome aberrations (anaphase analysis) in Crepis tectorum L. populations was 2,10±0,51% (the control 0,75±0,16%).	CG	Shevchenko et.al., 1998.
P22-7	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Total number of cells was 714. July, 1995.	Sr-90 - Y-90	3,7E+6 Bq/m2	9,6E-5 Gy/day		Frequency of chromosome aberrations (anaphase analysis) in Crepis tectorum L. populations was 1,54±0,46% (the control 0,75±0,16%).	CG	Shevchenko et.al., 1998.
P22-8	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Total number of cells was 894. July, 1995.	Sr-90 - Y-90	7,4E+6 Bq/m2	2,0E-4 Gy/day		Frequency of chromosome aberrations (anaphase analysis) in Crepis tectorum L. populations was 1,23±0,37% (the control 0,75±0,16%).	CG	Shevchenko et.al., 1998.
P22-9	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Total number of cells was 663. July, 1995.	Sr-90 - Y-90	9,25E+6 Bq/m2	2,4E-4 Gy/day		Frequency of chromosome aberrations (anaphase analysis) in Crepis tectorum L. populations was 1,51±0,47% (the control 0,75±0,16%).	CG	Shevchenko et.al., 1998.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
P22-10	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Total number of cells was 708. July, 1995.	Sr-90 - Y-90	1,85E+7 Bq/m2	4,8E-4 Gy/day		Frequency of chromosome aberrations (anaphase analysis) in Crepis tectorum L. populations was 2,68±0,61% (the control 0,75±0,16%).	CG	Shevchenko et.al., 1998.
P22-11	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Population of Crepis tectorum L. was additionally irradiated by acute gamma-radiation with dose 20 Gy. Total number of cells was 2235.	Sr-90 - Y-90	1,85E+5 Bq/m2	5,5E-6 Gy/day		Changes of radioresistance of chronicle exposure plant populations were not revealed. Frequency of chromosome aberrations in Crepis tectorum L. populations was 15,97±0,77% (the control 16,46±0,99%).	CG	Shevchenko et.al., 1998.
P22-12	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Population of Crepis tectorum L. was additionally irradiated by acute gamma-radiation with dose 20 Gy.	Sr-90 - Y-90	3,7E+6 Bq/m2	9,6E-5 Gy/day		Changes of radioresistance of chronicle exposure plant populations were not revealed. Frequency of chromosome aberrations in Crepis tectorum L. populations was 14,71±0,96% (the control 16,46±0,99%).	CG	Shevchenko et.al., 1998.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			Total number of cells was 1353.							
P22-13	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Population of Crepis tectorum L. was additionally irradiated by acute gamma-radiation with dose 20 Gy. Total number of cells was 2561.	Sr-90 - Y-90	7,4E+6 Bq/m2	2,0E-4 Gy/day		Changes of radioresistance of chronicle exposure plant populations were not revealed. Frequency of chromosome aberrations in Crepis tectorum L. populations was 17,57±0,75% (the control 16,46±0,99%).	CG	Shevchenko et.al., 1998.
P22-14	Herbaceous	*Crepis tectorum L.*	Area contaminated in 1957 as a result of the Kyshtym accident. Population of Crepis tectorum L. was additionally irradiated by acute gamma-radiation with dose 20 Gy. Total number of cells was 1717.	Sr-90 - Y-90	9,25E+6 Bq/m2	2,4E-4 Gy/day		Changes of radioresistance of chronicle exposure plant populations were not revealed. Frequency of chromosome aberrations in Crepis tectorum L. populations was 16,07±0,88% (the control 16,46±0,99%).	CG	Shevchenko et.al., 1998.
P22-15	Herbaceous	*Crepis tectorum*	Area contaminated in 1957 as a result	Sr-90 - Y-90	1,85E+6 Bq/m2	4,8E-4 Gy/day		Changes of radioresistance of chronicle exposure plant	CG	Shevchenko et.al., 1998.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		L.	of the Kyshtym accident. Population of Crepis tectorum L. was additionally irradiated by acute gamma-radiation with dose 20 Gy. Total number of cells was 584.					populations were not revealed. Frequency of chromosome aberrations in Crepis tectorum L. populations was 15,58±1,50% (the control 16,46±0,99%).		
P23-1	Herbaceous	*Cirsium setosum , Sonchus arvensis Sow-thistle, Pestinaca pratensis Parsnip, Potentilla anserina Cinquefoil, Alopecurus pratensis*	Acute gamma-irradiation of meadow plants. May,29 - June,9, 1979. Activity of Cs-137 was 11800E+12 Bq. Zone of strong damage (1-7 m).				(200-1400) Gy	Species diversity decreased considerably. From 59 species in the experimental plot only 8 remained in the irradiated plot.	ECOL	Smirnov et.al.,1983.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Meadow foxtail, Poa pratensis Fowl-grass								
P23-2	Herbaceous	*Meadow plants*	Acute gamma-irradiation of meadow plants. May,29 - June,9, 1979. Activity of Cs-137 was 11800E+12 Bq. Zone of average damage (7-23 m).				(25-200) Gy	Species diversity decreased by a factor of 2. From 59 species in the experimental plot only 25 remained in the irradiated plot.	ECOL	Smirnov et.al.,1983.
P23-3	Herbaceous	*Meadow plants*	Acute gamma-irradiation of meadow plants. May,29 - June,9, 1979. Activity of Cs-137 was 11800E+12 Bq. Zone of slight damage (23-80 m).				(0-25) Gy	Species diversity did not changed. From 60 species in the experimental plot 59 remained in the irradiated plot.	NE	Smirnov et.al.,1983.
P23-4	Herbaceous	*Meadow plants*	Acute gamma-irradiation of meadow plants. May,29 - June,9,				(200-1400) Gy	From 14 prepotent species, 9 died.	ECOL	Smirnov et.al.,1983.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			1979. Activity of Cs-137 was 11800E+12 Bq. Zone of strong damage (1-7 m). In 60 days after exposure.							
P23-5	Herbaceous	*Agropyrum repens Spear-grass*	Acute gamma-irradiation of meadow plants. May,29 - June,9, 1979. Activity of Cs-137 was 11800E+12 Bq. Zone of strong damage (1-7 m). In 60 days after exposure.				(200-1400) Gy	Number of Agropyrum repens plants sharply decreased (20±1 piece/m2; and 156±33 piece/m2 in the control).	ECOL	Smirnov et.al.,1983.
P23-6	Herbaceous	*Potentilla anserina Cinquefoil, Cirsium setosum, Sonchus arvensis Sow-*	Acute gamma-irradiation of meadow plants. May,29 - June,9, 1979. Activity of Cs-137 was 11800E+12 Bq. Zone of strong damage (1-7 m). In 60 days after				(200-1400) Gy	Number of Potentilla anserina, Cirsium setosum, Sonchus arvensis increased (10±2 piece/m2 and 5 piece/m2 in the control - Cirsium setosum; 12±2 piece/m2 and 2 piece/m2 in the control - Potentilla anserina; 12±2 piece/m2 and 3 piece/m2 in the	ECOL	Smirnov et.al.,1983.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		thistle	exposure.					control - Sonchus arvensis		
P23-7	Herbaceous	*Meadow plants*	Acute gamma-irradiation of meadow plants. May,29 - June,9, 1979. Activity of Cs-137 was 11800E+12 Bq. Zone of average damage (7-23 m).				(25-200) Gy	From 14 prepotent species, 5 died.	ECOL	Smirnov et.al.,1983.
P23-8	Herbaceous	*Potentilla anserina Cinquefoil, Cirsium setosum, Sonchus arvensis Sow-thistle, Poa pratensis Fowl-grass, Alopecurus pratensis*	Acute gamma-irradiation of meadow plants. May,29 - June,9, 1979. Activity of Cs-137 was 11800E+12 Bq.				93-200 Gy	Displacement of phenophase was observed.	ECOL	Smirnov et.al.,1983.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Meadow foxtail, Glaux maritima								
P23-9	Herbaceous	*Potentilla anserina Cinquefoil*	Acute gamma-irradiation of meadow plants. May,29 - June,9, 1979. Activity of Cs-137 was 11800E+12 Bq.				105-1400 Gy	Repeated blossoming was observed.	ECOL	Smirnov et.al.,1983.
P23-10	Herbaceous	*Potentilla anserina Cinquefoil*	Acute gamma-irradiation of meadow plants. May,29 - June,9, 1979. Activity of Cs-137 was 11800E+12 Bq.				25 Gy	Morphological changes of Potentilla anserina were observed (curliness of leaves).	MB	Smirnov et.al.,1983.
P23-11	Herbaceous	*Potentilla anserina Cinquefoil*	Acute gamma-irradiation of meadow plants. May,29 - June,9, 1979. Activity of Cs-137 was 11800E+12 Bq.				73 Gy	Morphological changes of Potentilla anserina were observed (burn and die of tendrils).	MB	Smirnov et.al.,1983.
P24-1	Herbaceous	*Plantago Lanceolata L.*	Area contaminated as a result of the Chernobyl accident.	Hot particles UOx		(1,2-4,8)E-5 Gy/day (August,		Numbers of abnormal germs in family was 14,2±4,3% (number of	MB	Popova, Frolova, 1993; Frolova et.al., 1989;

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Rib-grass	1988.			1986)		germs analysed - 492).		Frolova et.al., 1991; Frolova, Popova,1990; Frolova et.al., 1990.
P24-2	Herbaceous	*Plantago Lanceolata L. Rib-grass*	Area contaminated as a result of the Chernobyl accident. 1988.	Hot particles UOx		(4,8-12)E-5 Gy/day (August, 1986)		Number of abnormal germs in family was 26,0±5,2% (number of investigated germs was 871).	MB	Popova, Frolova, 1993; Frolova et.al., 1989; Frolova et.al., 1991; Frolova, Popova,1990; Frolova et.al., 1990.
P24-3	Herbaceous	*Plantago Lanceolata L. Rib-grass*	Area contaminated as a result of the Chernobyl accident. 1988.	Hot particles UOx		1,2E-3 Gy/day (August, 1986)		Numbers of abnormal germs in family were 23,1±4,4% (number of investigated germs was 475).	MB	Popova, Frolova, 1993; Frolova et.al., 1989; Frolova et.al., 1991; Frolova, Popova,1990; Frolova et.al., 1990.
P24-4	Herbaceous	*Plantago Lanceolata L. Rib-grass*	Area contaminated as a result of the Chernobyl accident. 1988.	Hot particles UOx		3,6E-2 Gy/day (August, 1986)		Numbers of abnormal germs in family were 31,7±6,7% (number of investigated germs was 542).	MB	Popova, Frolova, 1993; Frolova et.al., 1989; Frolova et.al., 1991; Frolova, Popova,1990; Frolova et.al.,

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
										1990.
P24-5	Herbaceous	*Plantago Lanceolata L. Rib-grass*	Area contaminated as a result of the Chernobyl accident. 1988.	Hot particles UOx		4,8E-2 Gy/day (August, 1986)		Number of abnormal germs in family was 21,0±3,9 (number of investigated germs was 256).	MB	Popova, Frolova, 1993; Frolova et.al., 1989; Frolova et.al., 1991; Frolova, Popova,1990; Frolova et.al., 1990.
P25-1	Herbaceous	*Plantago Lanceolata L. Rib-grass*	Area contaminated as a result of the Chernobyl accident. 1988.	Hot particles UOx		(1,2-4,8)E-5 Gy/day (August, 1986)		Numbers of families with abnormal germs were 68% (total number of families was 25).	MB	Frolova et.al., 1993; Popova, Frolova, 1996; Popova et.al., 1993.
P25-2	Herbaceous	*Plantago Lanceolata L. Rib-grass*	Area contaminated as a result of the Chernobyl accident. 1988.	Hot particles UOx		(4,8-12)E-5 Gy/day.		Numbers of families with abnormal germs were 96% (total number of families analysed was 25).	MB	Frolova et.al., 1993; Popova, Frolova, 1996; Popova et.al., 1993.
P25-3	Herbaceous	*Plantago Lanceolata L. Rib-grass*	Area contaminated as a result of the Chernobyl accident. 1988.	Hot particles UOx		1,2E-3 Gy/day (August, 1986)		Numbers of families with abnormal germs were 84% (total number of families was 25).	MB	Frolova et.al., 1993; Popova, Frolova, 1996; Popova et.al., 1993.
P25-4	Herbaceous	*Plantago Lanceolata L. Rib-*	Area contaminated as a result of the Chernobyl accident. 1988.	Hot particles UOx		3,6E-2 Gy/day (August, 1986)		Numbers of families with abnormal germs were 84% (total number of families was 25).	MB	Frolova et.al., 1993; Popova, Frolova, 1996; Popova et.al.,

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		grass								1993.
P25-5	Herbaceous	*Plantago Lanceolata L. Rib-grass*	Area contaminated as a result of the Chernobyl accident. 1988.	Hot particles UOx		4,8E-2 Gy/day (August, 1986)		Numbers of families with abnormal germs were 88% (total number of families was 17).	MB	Frolova et.al., 1993; Popova, Frolova, 1996; Popova et.al., 1993.
P26-1	Herbaceous	*Viola matutina Klok. Violet*	Area contaminated as a result of the Chernobyl accident. 1987-1988.	Cs-137, Sr-90, hot particles		9,6E-6 Gy/day (May,1987)		Germination of Viola matutina Klok. seeds in the experimental plot was 26% (in the laboratory - 21,0±8,0%).	NE	Popova et.al., 1994.
P26-2	Herbaceous	*Viola matutina Klok. Violet*	Area contaminated as a result of the Chernobyl accident. 1987-1988.	Cs-137, Sr-90, hot particles		(3,6-4,8)E-3 Gy/day (May,1987)		Germination of Viola matutina Klok. seeds in the experimental plot was 37% (in the laboratory - 35,3±2,7%).	NE	Popova et.al., 1994.
P26-3	Herbaceous	*Viola matutina Klok. Violet*	Area contaminated as a result of the Chernobyl accident. 1987-1988.	Cs-137, Sr-90, hot particles		9,6E-6 Gy/day (May,1987)		In 1988 pollen sterility in plants from experimental plot was 17,6±2,8% (number of pollen-grain analyzed was 53980). In 1991 pollen sterility in plants in the laboratory was 34,1±2,6% (number of pollen grains analyzed was 34640).	ADAP	Popova et.al., 1994.
P26-4	Herbaceous	*Viola matutina*	Area contaminated as a result of the	Cs-137, Sr-90, hot		(3,6-4,8)E-3		In 1988 pollen sterility in plants from experimental	ADAP	Popova et.al., 1994.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Klok. Violet	Chernobyl accident. 1987-1988.	particles		Gy/day (May,1987)		plot was 41,3±3,8% (number of pollen-grain analyzed was 40470). In 1991 pollen sterilityin plants in the laboratory was 17,9±2,5% (number of pollen grain analyzed was 33370).		
P27-1	Trees	*Betula verrucosa Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Dose rate of point source of Cs-137 was 8658 R/h.				400 Gy	Germination of Betula verrucosa Ehrh. seeds was (25-90)% (the control - about 100%).	MB	Pozolotina,1980; Kiseliova, Yushkov, 1977; Mamaev, Govorukha,1973; Makhnev,1971; Makhnev,1978.
P27-2	Trees	*Betula verrucosa Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Dose rate of point source of Cs-137 was 8658 R/h.				400 Gy	Survival of Betula verrucosa Ehrh. seedlings was 18-38% (in the control - about 100%).	MB	Pozolotina,1980; Kiseliova, Yushkov, 1977; Mamaev, Govorukha,1973; Makhnev,1971; Makhnev,1978.
P27-3	Trees	*Betula pubescens Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Dose rate of point source of Cs-137 was 8658 R/h.				400 Gy	Germination of Betula pubescens Ehrh. seeds was (35-82)% (in the control - about 85%).	MB	Pozolotina,1980; Kiseliova, Yushkov, 1977; Mamaev, Govorukha,1973; Makhnev,1971;

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
										Makhnev,1978.
P27-4	Trees	*Betula pubescens Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Dose rate of point source of Cs-137 was 8658 R/h.				400 Gy	Survival of Betula pubescens Ehrh. seedlings was 30-60% (in the control - about 90%).	MB	Pozolotina,1980; Kiseliova, Yushkov, 1977; Mamaev, Govorukha,1973; Makhnev,1971; Makhnev,1978.
P28-1	Trees	*Betula verrucosa Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Seeds were colected in different plots of birch forest. Dose rate of point source was 1,5 Gy/sec.				100,150 and 200 Gy	Irradiation of seeds did not changed such parameters as length of shoot, number and magnitude of leaves.	NE	Pozolotina,1985.
P28-2	Trees	*Betula verrucosa Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Seeds were colected in different plots of birch forest. Dose rate of point source was 1,5 Gy/sec.				200 Gy	Short lateral shoots on the trees were observed.	MB	Pozolotina,1985.
P28-3	Trees	*Betula verrucosa Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Seeds were colected in different				200 Gy	Survival of seedlings from irradiated seeds was 18% (the control - 46%).	MB	Pozolotina,1985.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			plots of birch forest. Dose rate of point source was 1,5 Gy/sec.							
P28-4	Trees	*Betula verrucosa Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Seeds were colected in different plots of birch forest. Dose rate of point source was 1,5 Gy/sec.				100 Gy	Seedlings irradiated in 1 month of age totally died during the wintering.	MT	Pozolotina,1985.
P28-5	Trees	*Betula verrucosa Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Seeds were colected in different plots of birch forest. Dose rate of point source was 1,5 Gy/sec.				50 Gy	Survival of seedlings irradiated in 1 month of age was 44% (the control 46%).	NE	Pozolotina,1985.
P28-6	Trees	*Betula verrucosa Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Seeds were colected in different plots of birch forest. Dose rate of point source was 1,5 Gy/sec.				75 Gy	Survival of seedlings irradiated in 1 month of age was 10% (the control 46%).	MT	Pozolotina,1985.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
P28-7	Trees	*Betula verrucosa Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Seeds were colected in different plots of birch forest. Dose rate of point source was 1,5 Gy/sec.				50 Gy	Growth of 1-year seedlings reduced comparing with the control. Growth of shoot was 70% of the control.	REPR	Pozolotina,1985.
P28-8	Trees	*Betula verrucosa Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Seeds were colected in different plots of birch forest. Dose rate of point source was 1,5 Gy/sec.				75 Gy	Growth of 1-year seedlings reduced comparing with the control. Growth of shoots was 30% of the control.	REPR	Pozolotina,1985.
P28-9	Trees	*Betula verrucosa Ehrh. Birch*	Acute gamma-irradiation of birch seeds. Seeds were colected in different plots of birch forest. Dose rate of point source was 1,5 Gy/sec.				50 Gy	In 2 months after the irradiation post-radiation renewal of birch seedlings was observed. Growth of leading shoots resumed. Leaves formed on the new shoots had an accurate form and normal size.	REPR	Pozolotina,1985.
P29-1	Trees	*Betula pendula Roth. Birch*	Acute gamma-irradiation of birch seeds. Dose rate of point source of Co-				250-300 Gy	On the stage of leaves formation germs of Betula pendula Roth. fully died.	MT	Pozolotina, Kulikov, 1988.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			60 was 0,695 Gy/sec.							
P29-2	Trees	*Betula pendula Roth. Birch*	Acute gamma-irradiation of birch seeds. Dose rate of point source of Co-60 was 0,695 Gy/sec.				175 Gy	Survival of Betula pendula Roth. germs was 80% (the control - 96%).	MB	Pozolotina, Kulikov, 1988.
P29-3	Trees	*Betula pendula Roth. Birch*	Acute gamma-irradiation of birch seeds. Dose rate of point source of Co-60 was 0,695 Gy/sec.				200 Gy	Survival of Betula pendula Roth. germs was 67% (the control - 96%).	MB	Pozolotina, Kulikov, 1988.
P29-4	Trees	*Betula pendula Roth. Birch*	Acute gamma-irradiation of birch seeds. Dose rate of point source of Co-60 was 0,695 Gy/sec.				175 Gy	In the first season after exposure length of shoots was 3-4 times lower then in the control (1,8±0,1 cm - on the irradiated plants and 5,5±+0,2 cm - on the control).	MB	Pozolotina, Kulikov, 1988.
P29-5	Trees	*Betula pendula Roth. Birch*	Acute gamma-irradiation of birch seeds. Dose rate of point source of Co-60 was 0,695 Gy/sec.				200 Gy	In first season after exposure length of shoots was in 3-4 times lower then on the control (1,2+0,1 cm - in the irradiated plants and 5,5±0,2 cm - in the	MB	Pozolotina, Kulikov, 1988.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
								control).		
P29-6	Trees	*Betula pendula Roth. Birch*	Acute gamma-irradiation of birch seeds. Dose rate of point source of Co-60 was 0,695 Gy/sec.				175 Gy	In 2-3 years after the exposure lengths of shoots were 1,5-2 times lower then those in the control (7,8±0,3 cm - in the irradiated plants and 12,2±0,2 cm - in the control).	MB	Pozolotina, Kulikov, 1988.
P29-7	Trees	*Betula pendula Roth. Birch*	Acute gamma-irradiation of birch seeds. Dose rate of point source of Co-60 was 0,695 Gy/sec.				200 Gy	In 2-3 years after the exposure lengths of shoots was in 1,5-2 times lower then those in the control (5,6±0,3 cm - in the irradiated plants and 12,2±0,2 cm - in the control).	MB	Pozolotina, Kulikov, 1988.
P30-1	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated as a result of the Chernobyl accident. 1988. Experimental plot located in Chernobyl. Seeds of Taraxacum officinale Wigg. was additionally exposed to gamma-radiation (point	Cs-137, Sr-90, hot particles		(4,8-22)E-5 Gy/day.		Radioresistence of Taraxacum officinale Wigg. from Chernobyl was lower then that in the control. Survival of Taraxacum officinale Wigg. was 44,3±6,4% (the control - 92,4±2,8%).	MB	Pozolotina et.al., 1991; Pozolotina,1989; Pozolotina,1990; Taskaev et.al., 1988.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			source of Co-60) in doses 100-150 Gy.							
P30-2	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated as a result of the Chernobyl accident. 1988. Experimental plot located in Yanov. Seeds of Taraxacum officinale Wigg. was additionally exposed to gamma-radiation (point source of Co-60) in doses 100-150 Gy.	Cs-137, Sr-90, hot particles		(7,2-46)E-4 Gy/day.		Radioresistance of Taraxacum officinale Wigg. from Yanov was lower then that in the control. Survival of Taraxacum officinale Wigg. was 34,0±2,4% (the control - 92,4±2,8%).	MB	Pozolotina et.al., 1991; Pozolotina,1989; Pozolotina,1990; Taskaev et.al., 1988.
P30-3	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated as a result of the Chernobyl accident. 1988. Experimental plot located in Chernobyl. Seeds of Taraxacum officinale Wigg. was additionally exposed to gamma-radiation (point source of Co-60) in doses 100-150 Gy.	Cs-137, Sr-90, hot particles		(4,8-22)E-5 Gy/day.		Germination of Taraxacum officinale Wigg. seeds was 63,6±2,8% (the control - 94,4±2,5%).	MB	Pozolotina et.al., 1991; Pozolotina,1989; Pozolotina,1990; Taskaev et.al., 1988.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
P30-4	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated as a result of the Chernobyl accident. 1988. Experimental plot located in Yanov. Seeds of Taraxacum officinale Wigg. was additionally exposed to gamma-radiation (point source of Co-60) in doses 100-150 Gy.	Cs-137, Sr-90, hot particles		(7,2-46)E-4 Gy/day.		Germination of Taraxacum officinale Wigg. seeds was 40,0±2,4% (the control - 94,4±2,5%).	MB	Pozolotina et.al., 1991; Pozolotina,1989; Pozolotina,1990; Taskaev et.al., 1988.
P30-5	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated as a result of the Chernobyl accident. 1988. Experimental plot located in Chernobyl.	Cs-137, Sr-90, hot particles		(4,8-22)E-5 Gy/day.		From 15000 germs of Taraxacum officinale Wigg. number of plants with visible changes was 0,14%. Moreover, 40% of damages were adnate twins.	NE	Pozolotina et.al., 1991; Pozolotina,1989; Pozolotina,1990; Taskaev et.al., 1988.
P31-1	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Experimental plot was located in 90 km from Kyshtym near lake Tygish in	Sr-90-Y-90	85,5E+3 Bq/m2	(1,7-2,6)E-3 Gy/day		Radioresistance of Taraxacum officinale Wigg.seeds from plot located near lake Tygish was higher then in the control. Survival of Taraxacum officinale Wigg. After probing	MB	Pozolotina et.al., 1992.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			birch forest. Concentration of Sr-90 in soil was 600 Bq/kg. Seeds of Taraxacum officinale Wigg. were additionally exposed to probing gamma-radiation (point source of Co-60).1990.					radiation exposure was 60,7±3,8% (in the control - 40,3±3,4%).		
P31-2	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Experimental plot located in a forest near settlement Rassokha. Concentration of Sr-90 in soil was 90 Bq/kg. Seeds of Taraxacum officinale Wigg. were additionally exposed to probing gamma-radiation (point source of Co-	Sr-90-Y-90	1,7E+3 Bq/m2	(1,7-2,6)E-3 Gy/day		Radioresistance of Taraxacum officinale Wigg.seeds from plot located in a forest near settlement Rassokha was higher then in the control. Survival of Taraxacum officinale Wigg. after probing radiation exposure was 50,7±1,7% (in the control - 40,3±3,4%).	STIM	Pozolotina et.al., 1992.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			60).1990.							
P31-3	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Experimental plot located in 90 km from Kyshtym near lake Tygish in birch forest. Concentration of Sr-90 in soil was 600 Bq/kg. Seeds of Taraxacum officinale Wigg. were additionally exposed to probing gamma-radiation (point source of Co-60) with Dose rate of 1156 Gy/day.1990.	Sr-90-Y-90	85,5E+3 Bq/m2	(1,7-2,6)E-3 Gy/day		Frequency of chromosomal aberrations in Taraxacum officinale Wigg. seeds was 19,8±3,1% (in the control - 5,2±2,2%).	CG	Pozolotina et.al., 1992.
P31-4	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Experimental plot located in a forest	Sr-90-Y-90	1,7E+3 Bq/m2	(1,7-2,6)E-3 Gy/day		Frequency of chromosomal aberrations in Taraxacum officinale Wigg. seeds was 11,1±2,2% (in the control - 5,2±2,2%).	CG	Pozolotina et.al., 1992.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			near settlement Rassokha. Concentration of Sr-90 in soil was 90 Bq/kg. Seeds of Taraxacum officinale Wigg. were additionally exposed to probing gamma-radiation (point source of Co-60). 1990.							
P32-1	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Concentration of Sr-90 in soil was 400 Bq/kg.1992.	Sr-90-Y-90	31,0E+3 Bq/m2	(1,7-2,6)E-3 Gy/day		Germination of Taraxacum officinale Wigg. seeds was 72,6±3,4% (the control - 86,3±3,4%).	MB	Pozolotina et.al., 1996; Molchanova et.al, 1994.
P32-2	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Concentration of Sr-90 in soil was 600 Bq/kg. 1992.	Sr-90-Y-90	85,5E+3 Bq/m2	(1,7-2,6)E-3 Gy/day		Germination of Taraxacum officinale Wigg. seeds was 63,0±8,8% (the control - 86,3±3,4%).	MB	Pozolotina et.al., 1996; Molchanova et.al, 1994.
P32-3	Herbaceous	*Taraxacum*	Area contaminated in 1957 as a result	Sr-90-Y-90	22,7E+3 Bq/m2	(1,7-2,6)E-3		Germination of Taraxacum officinale	MB	Pozolotina et.al., 1996;

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		officinale Wigg. Dandelion	of the Kyshtym accident. Concentration of Sr-90 in soil was 200 Bq/kg.1992.			Gy/day		Wigg. seeds was 74,5±3,6% (the control - 86,3±3,4%).		Molchanova et.al, 1994.
P32-4	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Concentration of Sr-90 in soil was 400 Bq/kg.1992.	Sr-90-Y-90	31,0E+3 Bq/m2	(1,7-2,6)E-3 Gy/day		Frequency of chromosomal aberrations in Taraxacum officinale Wigg. seeds was 2,0±0,8% (the control - 2,9±1,1%).	CG	Pozolotina et.al., 1996; Molchanova et.al, 1994.
P32-5	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Concentration of Sr-90 in soil was 600 Bq/kg. 1992.	Sr-90-Y-90	85,5E+3 Bq/m2	(1,7-2,6)E-3 Gy/day		Frequency of chromosomal aberrations in Taraxacum officinale Wigg. seeds was 4,6±1,1% (the control - 2,9±1,1%).	CG	Pozolotina et.al., 1996; Molchanova et.al, 1994.
P32-6	Herbaceous	*Taraxacum officinale Wigg. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Concentration of Sr-90 in soil was 200 Bq/kg.1992.	Sr-90-Y-90	22,7E+3 Bq/m2	(1,7-2,6)E-3 Gy/day		Frequency of chromosomal aberrations in Taraxacum officinale Wigg. seeds was 6,1±0,7% (the control - 2,9±1,1%).	CG	Pozolotina et.al., 1996; Molchanova et.al, 1994.
P33-1	Herbaceous	*Taraxacum*	Area contaminated in 1957 as a result	Sr-90, Cs-137	63,4E+3 Bq/m2	8,0E-6 Gy/day		Numbers of cells with chromosomal aberrations	CG	Pozolotina, 2001.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		officinale s.l. Dandelion	of the Kyshtym accident. Experimental plot located near lake Tygish. Concentration of Sr-90 in 0-5 cm layer of soil was 646E+3 Bq/kg. 1998.		(Sr-90); 5,0E+3 Bq/m2 (Cs-137)			were 5,11±1,62% (the control - 1,18±0,60%).		
P33-2	Herbaceous	*Taraxacum officinale s.l. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Experimental plot located on the right shore of river Techa. Concentration of Sr-90 in 0-5 cm layer of soil was 4348E+3 Bq/kg. 1998.	Sr-90, Cs-137	711,6E+3 Bq/m2 (Sr-90); 2506,6E+3 Bq/m2 (Cs-137)	1,0E-4 Gy/day		Numbers of cells with chromosomal aberrations were 8,55±2,42% (the control - 1,18±0,60%).	CG	Pozolotina, 2001.
P33-3	Herbaceous	*Taraxacum officinale s.l. Dandelio*	Area contaminated in 1957 as a result of the Kyshtym accident. Experimental plot	Sr-90, Cs-137	63,4E+3 Bq/m2 (Sr-90); 5,0E+3 Bq/m2	8,0E-6 Gy/day		Germination of Taraxacum officinale s.l. seeds was 49,3% (3,2-85,2%) (the control - 84,1%(37,2-94,0)).	MB	Pozolotina, 2001.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		n	located near lake Tygish. Concentration of Sr-90 in 0-5 cm layer of soil was 646E+3 Bq/kg. 1998.		(Cs-137)					
P33-4	Herbaceous	*Taraxacum officinale s.l. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Experimental plot located on the right shore of river Techa. Concentration of Sr-90 in 0-5 cm layer of soil was 4348E+3 Bq/kg. 1998.	Sr-90, Cs-137	711,6E+3 Bq/m2 (Sr-90); 2506,6E+3 Bq/m2 (Cs-137)	1,0E-4 Gy/day		Germination of Taraxacum officinale s.l. seeds was 60,9% (45,2-76,8%). In the control - 84,1%(37,2-94,0)).	MB	Pozolotina, 2001.
P33-5	Herbaceous	*Taraxacum officinale s.l. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Experimental plot located near lake Tygish. Concentration of	Sr-90, Cs-137	63,4E+3 Bq/m2 (Sr-90); 5,0E+3 Bq/m2 (Cs-137)	8,0E-6 Gy/day		Survival of Taraxacum officinale s.l. was 43,6% (2,8-82,8%). Iin the control - 65,8% (37,2-94,0).	MB	Pozolotina, 2001.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			Sr-90 in 0-5 cm layer of soil was 646E+3 Bq/kg. 1998.							
P33-6	Herbaceous	*Taraxacum officinale s.l. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Experimental plot located on the right shore of river Techa. Concentration of Sr-90 in 0-5 cm layer of soil was 4348E+3 Bq/kg. 1998.	Sr-90, Cs-137	711,6E+3 Bq/m2 (Sr-90); 2506,6E+3 Bq/m2 (Cs-137)	1,0E-4 Gy/day		Survival of Taraxacum officinale s.l. was 56,8% (18,8-72,8%). In the control - 65,8%(37,2-94,0).	MB	Pozolotina, 2001.
P33-7	Herbaceous	*Taraxacum officinale s.l. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Experimental plot located near lake Tygish. Concentration of Sr-90 in 0-5 cm layer of soil was 646E+3 Bq/kg.	Sr-90, Cs-137	63,4E+3 Bq/m2 (Sr-90); 5,0E+3 Bq/m2 (Cs-137)	8,0E-6 Gy/day		Number of plants with leaves was 33,9%(2,0-68,0%). In the control - 46,2% (34,8-56,8%).	MB	Pozolotina, 2001.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			1998.							
P33-8	Herbaceous	*Taraxacum officinale s.l. Dandelion*	Area contaminated in 1957 as a result of the Kyshtym accident. Experimental plot located on the right shore of river Techa. Concentration of Sr-90 in 0-5 cm layer of soil was 4348E+3 Bq/kg. 1998.	Sr-90, Cs-137	711,6E+3 Bq/m2 (Sr-90); 2506,6E+3 Bq/m2 (Cs-137)	1,0E-4 Gy/day		Numbers of plants with leaves were 36,1%(13,6-44,4%). In the control - 46,2%(34,8-56,8%)).	MB	Pozolotina, 2001.
P34-1	Herbaceous	*Vicia cracca L. Wild vetch*	Area with high level natural radioactivity. Komi region. Vegetative period was 100 days.	U-238, Ra-226, Po-210		(4,8-6,0)E-4 Gy/day	(0,05-0,07) Sv - for earth-based part of plants; (0,5-0,7)Sv - for roots.	In irradiated population of Vicia cracca L. numbers of sterile seed-buds was lower (0,70-0,77 then those in the control (0,99-1,06).	MB	Popova, Taskaev,1977.
P34-2	Herbaceous	*Vicia cracca L. Wild vetch*	Area with high level natural radioactivity. Komi region. Vegetative period was 100 days.	U-238, Ra-226, Po-210		(4,8-6,0)E-4 Gy/day	(0,05-0,07) Sv - for earth-based part of plants; (0,5-0,7)Sv - for roots.	Embryonic lethality in irradiated population of Vicia cracca L. was lower then that in the control: 49,6±5,8% and 62,2±1,9% respectively.	CG	Popova, Taskaev,1977.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
P35-1	Herbaceous	*Vicia cracca L. Wild vetch*	Area with high level natural radioactivity. Komi region. Seeds of Vicia cracca L. were additionally exposed to probing acute gamma-radiation in doses 30-150 Gy.	U-238, Ra-226, Po-210		(3,6-60)E-5 Gy/day	30-70 Gy	Acute irradiation in doses 30-70 Gy visibly stimulated germination of seeds from chronically irraddiated population of Vicia cracca L., and from the control population. Number of germinated seeds was 91% (the control - 86%).	STIM	Popova, Taskaev,1980.
P35-2	Herbaceous	*Vicia cracca L. Wild vetch*	Area with high level natural radioactivity. Komi region. Seeds of Vicia cracca L. were additionally exposed to probing acute gamma-radiation in doses 30-150 Gy.	U-238, Ra-226, Po-210		(3,6-60)E-5 Gy/day	90 Gy and more	Acute irradiation in doses 90 Gy and higher oppressed germination of seeds both from chronically irradiated population of Vicia cracca L., and from the control population.	MB	Popova, Taskaev,1980.
P35-3	Herbaceous	*Vicia cracca L. Wild vetch*	Area with high level natural radioactivity. Komi region. Seeds of Vicia cracca L. were additionally exposed to probing acute gamma-	U-238, Ra-226, Po-210		(3,6-60)E-5 Gy/day	90 Gy and more	Radioresistance of seeds from chronically irradiated population of Vicia cracca L. was higher then in the control (27,5±2,5% and 19,6±2,4% - in the control).	MB	Popova, Taskaev,1980; Popova et.al., 1985; Strelchuk,1975; Strelchuk et.al., 1973.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			radiation in doses 30-150 Gy.							
P35-4	Herbaceous	*Vicia cracca L. Wild vetch*	Area with high level natural radioactivity. Komi region. Field study.	U-238, Ra-226, Po-210		6,0E-4 Gy/day		Towards the end of the first vegetative period survival of Vicia cracca L. was 45,0±5,7% from the maximum number of sprouted plants (83,0±8,1% - in the control).	MB	Popova, Taskaev,1980; Preobrazhenskaya ,1971; Turbin et.al., 1977.
P36-1	Herbaceous	*Vicia cracca L. Wild vetch*	Area with high level natural radioactivity. Komi region.	U-238, Ra-226, Po-210		6,0E-4 Gy/day		Number of variable mitosis in chronicle irradiated plants was 68,2% (in the control - 57,6%).	CG	Popova, Shershunova,1981 ; Popova et.al., 1984a; Popova et.al.,1984b.
P36-2	Herbaceous	*Vicia cracca L. Wild vetch*	Area with high level natural radioactivity. Komi region.	U-238, Ra-226, Po-210		6,0E-4 Gy/day		Total number of anaphase with aberrations in plants from experimental plot was 1,9% (in the control - 1,11%).	CG	Popova, Shershunova,1981 ; Popova et.al., 1984a; Popova et.al.,1984b.
P36-3	Herbaceous	*Vicia cracca L. Wild vetch*	Area with high level natural radioactivity. Komi region.	U-238, Ra-226, Po-210		6,0E-4 Gy/day		Frequency of chlorophyll mutations in chronicle irradiated population was lower then in the control (0,43% and 2,73% - in the control).	CG	Popova, Shershunova,1981 ; Popova et.al., 1984a; Popova et.al.,1984b.
P37-1	Herbaceous	*Vicia cracca L.*	Area with high level natural	U-238, Ra-226, Po-210		(3,6-60)E-5 Gy/day	70 Gy	Numbers of chromosomal aberrations in population	CG	Popova, Shershunova,1987

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		Wild vetch	radioactivity. Komi region. Field study. Seeds of Vicia cracca L. were additionally exposed to probing gamma-radiation in dose 70 Gy.					from contaminated area were 10% (8% - in the control).		; Popova et.al., 1986; Popova et.al.,1985a; Popova et.al.,1985b.
P37-2	Herbaceous	*Vicia cracca L. Wild vetch*	Area with high level natural radioactivity. Komi region. Field study. Seeds of Vicia cracca L. were additionally exposed to probing gamma-radiation in dose 110 Gy.	U-238, Ra-226, Po-210		(3,6-60)E-5 Gy/day	110 Gy	Numbers of chromosomal aberrations in population from contaminated area was higher then that in the control - 35% (20% - in the control).	CG	Popova, Shershunova,1987 ; Popova et.al., 1986; Popova et.al.,1985a; Popova et.al.,1985b.
P38-1	Herbaceous	*Phleum pratense L. Timothy-grass, Setaria viridis L.Beauv, Echinochloa*	Area contaminated as a result of the Chernobyl accident. 1986-1988. The laboratory experiment.	Cs-137, Sr-90, hot particles		(2,4 - 1900)E-5 Gy/day		In 1986, in the first posterity of Phleum pratense L., Setaria viridis L. Beauv, and Echinochloa crusgalli L.Beauv grown from seeds of first post-accident reproduction the survival was 100%.	STIM	Popova et.al., 1991.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		crusgalli L.Beauv								
P38-2	Herbaceous	*Phleum pratense L. Timothy-grass, Setaria viridis L.Beauv, Echinochloa crusgalli L.Beauv*	Area contaminated as a result of the Chernobyl accident. 1986-1988. The laboratory experiment.	Cs-137, Sr-90, hot particles		(0,5-6700)E-5 Gy/day		In 1987, in posterity of Phleum pratense L., Setaria viridis L.Beauv and Echinochloa crusgalli L.Beauv of second post-accident reproduction, no signs of oppression in plants grown from seeds obtained from higher contaminated plots were observed.	NE	Popova et.al., 1991.
P38-3	Herbaceous	*Phleum pratense L. Timothy-grass.*	Area contaminated as a result of the Chernobyl accident. 1986-1988. The laboratory experiment.	Cs-137, Sr-90, hot particles		(0,5 - 360)E-5 - Gy/day		In 1988, connection between radiation loading and changeability of morphometrical indicators was not revealed.	NE	Popova et.al., 1991.
P39-1	Herbaceous	*Phleum pratense L. Timothy-grass.*	Area contaminated as a result of the Chernobyl accident. 1986-1988. Seeds of Phleum pratense L. were additionally exposed to probing acute gamma-	Cs-137, Sr-90, hot particles		(0,5-480)E-5 Gy/day	100-500 Gy	Delay in growth processes was observed.	MB	Frolova et.al., 1991; Preobrazhenskaya, 1971.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			radiation in different doses.							
P39-2	Herbaceous	*Phleum pratense L. Timothy-grass.*	Area contaminated as a result of the Chernobyl accident. 1986-1988. Seeds of Phleum pratense L. were additionally exposed to probing acute gamma-radiation in different doses.	Cs-137, Sr-90, hot particles		(0,5-480)E-5 Gy/day	5-10 Gy	Signs of growth depression were observed.	MB	Frolova et.al., 1991; Preobrazhenskaya, 1971.
P39-3	Herbaceous	*Phleum pratense L. Timothy-grass.*	Area contaminated as a result of the Chernobyl accident. 1986-1988. Seeds of Phleum pratense L. were additionally exposed to probing acute gamma-radiation in different doses.	Cs-137, Sr-90, hot particles		(0,5-480)E-5 Gy/day	20 Gy	Stimulation of growth processes was observed.	STIM	Frolova et.al., 1991; Preobrazhenskaya, 1971.
P39-4	Herbaceous	*Phleum pratense L. Timothy-grass.*	Area contaminated as a result of the Chernobyl accident. 1986-1988. Seeds of Phleum pratense L. were additionally	Cs-137, Sr-90, hot particles		(0,5-480)E-5 Gy/day	50 and more Gy	Delay in growth of embryonic rootlet and shoot was observed.	MB	Frolova et.al., 1991; Preobrazhenskaya, 1971.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			exposed to probing acute gamma-radiation in different doses.							
P39-5	Herbaceous	*Setaria viridis L.Beauv*	Area contaminated as a result of the Chernobyl accident. 1986-1988. Seeds of Phleum pratense L. were additionally exposed to probing acute gamma-radiation in different doses.	Cs-137, Sr-90, hot particles		(2,4 -7,2)E-4 Gy/day (in 1988)	5-80 Gy	Stimulation of growth processes was observed.	STIM	Frolova et.al., 1991; Preobrazhenskaya , 1971.
P39-6	Herbaceous	*Setaria viridis L.Beauv*	Area contaminated as a result of the Chernobyl accident. 1986-1988. Seeds of Phleum pratense L. were additionally exposed to probing acute gamma-radiation in different doses.	Cs-137, Sr-90, hot particles		(2,4 - 7,2)E-3 Gy/day (in 1988)	5-80 Gy	Signs of growth depression were observed.	MB	Frolova et.al., 1991; Preobrazhenskaya , 1971.
P40-1	Trees	*Pinus sylvestris L. Scotch pine*	Acute gamma-irradiation of pine-birch forest (trees of 30-years old).				10-30 Gy	Numbers of irradiated pine trees infested by xylophagous insects were 10-18% (in the control -	ECOL	Spirin et.al., 1985; Karaban' et.al.,1977; Prister et.al., 1977;

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			Activity of Cs-137 in the source was 1,2E+15 Bq. Destruction of irradiated forest by xylophagous insects was studied.					5%).		Karaban' et.al., 1978.
P40-2	Trees	*Pinus sylvestris L. Scotch pine*	Acute gamma-irradiation of pine-birch forest (trees of 30-years old). Activity of Cs-137 in the source was 1,2E+15 Bq. Destruction of irradiated forest by xylophagous insects was studied.				30-100 Gy	Numbers of irradiated pine trees infested by xylophagous insects were 60-78% (in the control - 5%).	ECOL	Spirin et.al., 1985; Karaban' et.al.,1977; Prister et.al., 1977; Karaban' et.al., 1978.
P40-3	Trees	*Pinus sylvestris L. Scotch pine*	Acute gamma-irradiation of pine-birch forest (trees of 30-years old). Activity of Cs-137 in the source was 1,2E+15 Bq. Destruction of irradiated forest by xylophagous insects				100-230 Gy	Numbers of irradiated pine trees infested by xylophagous insects were 100% (in the control - 5%).	ECOL	Spirin et.al., 1985; Karaban' et.al.,1977; Prister et.al., 1977; Karaban' et.al., 1978.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			was studied.							
P41-1	Trees	*Pinus sylvestris L. Scotch pine*	Acute gamma-irradiation of pine-birch forest. Activity of point source of Cs-137 was 1,0E+15 Bq. Ages of trees were 24-26 years. Total number of irradiated trees was 2000 on each plot. Observations were carried out during 6 years after the exposure.				1-12 Gy	In the first vegetative season the mass of pine pollen was 47-28% of the control ((1,0±0,1)E-2 g -in the experimental plot and (2,1±0,2)E-2 g - in the control).	MB	Tikhomirov, Fedotov, 1982.
P41-2	Trees	*Pinus sylvestris L. Scotch pine*	Acute gamma-irradiation of pine-birch forest. Activity of point source of Cs-137 was 1,0E+15 Bq. Ages of trees were 24-26 years. Total number of irradiated trees was 2000 on each plot. Observations were				22 Gy	In the first vegetative season the mass of pine pollen was 5% of the control ((0,1±0,1)E-2 g -in the experimental plot and (2,1±+0,2)E-2 g - in the control).	MT	Tikhomirov, Fedotov, 1982.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			carried out during 6 years after the exposure.							
P41-3	Trees	*Pinus sylvestris L. Scotch pine*	Acute gamma-irradiation of pine-birch forest. Activity of point source of Cs-137 was 1,0E+15 Bq. Ages of trees were 24-26 years. Total number of irradiated trees was 2000 on each plot. Observations were carried out during 6 years after the exposure.				22 Gy	In the fifth vegetative period the mass of pine pollen was 25% of the control ((0,4±0,1)E-2 g -in the experimental plot and (1,9±0,2)E-2 g - in the control).	MB	Tikhomirov, Fedotov, 1982.
P41-4	Trees	*Pinus sylvestris L. Scotch pine*	Acute gamma-irradiation of pine-birch forest. Activity of point source of Cs-137 was 1,0E+15 Bq. Ages of trees were 24-26 years. Total number of irradiated trees was				20-26 Gy	Most of trees died.	MT	Tikhomirov, Fedotov, 1982.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			2000 on each plot. Observations were carried out during 6 years after the exposure.							
P41-5	Trees	*Pinus sylvestris L. Scotch pine*	Acute gamma-irradiation of pine-birch forest. Activity of point source of Cs-137 was 1,0E+15 Bq. Ages of trees were 24-26 years. Total number of irradiated trees was 2000 on each plot. Observations were carried out during 6 years after the exposure.				12 Gy	In the first years after the irradiation (autumn irradiation) frequency of chromosomal aberrations was 4,8±0,6% (in the control - 0,9±0,5%).	CG	Tikhomirov, Fedotov, 1982.
P41-6	Trees	*Pinus sylvestris L. Scotch pine*	Acute gamma-irradiation of pine-birch forest. Activity of point source of Cs-137 was 1,0E+15 Bq. Ages of trees were 24-26 years. Total				5 Gy	In the first years after the irradiation (spring irradiation) frequency of chromosomal aberrations was 15,9±0,8% (in the control - 1,9±0,5%).	CG	Tikhomirov, Fedotov, 1982.

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
			number of irradiated trees was 2000 on each plot. Observations were carried out during 6 years after the exposure.							
P42-1	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated in 1957 as a result of the Kyshtym accident. "Acute" period. Autumn of 1957 - Winter of 1957- 1958. By the autumn of 1959, the area of ruined pine trees was about 100 km2.		7,4E+6 Bq/m2	0,2 Gy/day (Sr-90) the initial absorbed dose rate	19 Gy during the "acute" period	Major part of terminal and lateral buds did not begin to grow. Remaining buds developed into shortened clusters of shoots. Subsequently, the crowns of pine trees turned yellow and dried up.	MB	Kryshev, 1997.
P42-2	Trees	*Pinus sylvestris L. Scotch pine*	Area contaminated in 1957 as a result of the Kyshtym accident. "Acute" period. Spring, 1958. The area of damaged pine trees was about 200 km2.		(1,5-1,8)E+6 Bq/m2	0,07 Gy/day (Sr-90) the initial absorbed dose rate	6,8 Gy during the "acute" period	Partial damage of pine crown was observed, such as drying-up and falling of the needles, primarily in the lower part of the crown, and retarded growth of shoots and wood.	MB	Kryshev, 1997.
P42-3	Trees	*Betula verrucos*	Area contaminated in 1957 as a result		50E+6 Bq/m2	1,3 Gy/day (Sr-90) the	88 Gy during the	Lethal effects in birch trees were observed (falling of	MT	Kryshev, 1997; Karaban' et.al.,

Identification NN of record	Type of organism	*Latin name*	Impact	Nuclide	Density of surface soil contamination, Bq/m2	Dose rate, Gy/d	Dose, Gy	Effect	Effect code	Reference
		a Ehrh. Birch	of the Kyshtym accident. "Acute" period. Autumn of 1957 - Winter of 1957- 1958.			initial absorbed dose rate	"acute" period	leaves, damage in crown etc.)		1979.
P42-4	Trees	*Betula verrucosa Ehrh. Birch*	Area contaminated in 1957 as a result of the Kyshtym accident. "Acute" period. Autumn of 1957 - Winter of 1957- 1958.		150E+6 Bq/m2	3,75 Gy/day (Sr-90) the initial absorbed dose rate	more 200 Gy during the "acute" period	Total destruction of birch trees was observed.	MT	Kryshev, 1997; Karaban' et.al., 1979.