THIS REPORT GENERATED FROM DATA LOCKED THRU 12-JUN-90

STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 1

PATHOLOGY SECTION

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 13-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: SCHEDULED SACRIFICES PERIODS: : 7-AUG-1989:10-AUG-1989

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED — MALES			
ANIMAL SEX :	MN	M1	M2	M3
DOSAGE GROUP:				
NO. IN GROUP:	14	19	17	17
ADRENAL(S)				
-#B - CORTICAL ADENOMA	0	0	0	1
-#B - PHEOCHROMOCYTOMA	0	6	4	3
-#M - PHEOCHROMOCYTOMA	0	0	1	0
BRAIN				
BONE	..	..		(15)
SP.CORD,CERVICAL				
-#M - GLIOMA	0	1	0	0
CECUM				
DUODENUM				
EYE(S)				
-#M - NEUROFIBROSARCOMA (SCHWANNOMA)	0	0	0	1
KIDNEY(S)				
-#B - LIPOMA	1	0	0	0
-#M - LIPOSARCOMA	0	0	1	0
-#B - TUBULAR ADENOMA	0	1	0	0
LIVER				
-#B - HEPATOCELLULAR ADENOMA	1	1	3	4
-#M - HEPATOCELLULAR CARCINOMA	1	1	0	0
LUNG				
MAMMARY GLAND	(13)	(13)	(14)	(14)
-#B - ADENOMA/ADENOFIBROMA/FIBROMA	0	1	0	0
-#M - CARCINOMA/ADENOCARCINOMA	1	0	0	0
LY.NODE,MESENT.		(18)		
-#B - HEMANGIOMA	0	0	0	1
MESENTERY/OM'TUM	(3)	(1)	(2)	(2)
NOSE/TURBINATES				(15)

CONTAINS TRA
OR OTHER
CONFIDENTIAL INFORM
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THIS REPORT GENERATED FROM DATA LOCKED THRU 12-JUN-90

STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 2
PATHOLOGY SECTION
STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 13-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***
SELECTION CRITERIA: SCHEDULED SACRIFICES PERIODS: : 7-AUG-1989:10-AUG-1989

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED — MALES			
ANIMAL SEX :	MALES			
DOSAGE GROUP:	MN	M1	M2	M3
NO. IN GROUP:	14	19	17	17
NOSE/TURBINATES				(15)
-0B - PAPILLARY ADENOMA	0	0	0	1
PANCREAS				
-0B - ISLET CELL ADENOMA	0	4	3	3
-0M - ISLET CELL CARCINOMA	1	0	0	0
PAWS/FEET	(6)	(9)	(5)	(8)
PITUITARY				
-0B - ADENOMA, PARS DISTALIS	13	15	14	10
PROSTATE				
PARATHYROID(S)				(16)
SKIN	(13)			
-0B - KERATOACANTHOMA	0	2	2	4
-0M - SQUAMOUS CELL CARCINOMA	0	0	0	1
-0B - BASAL CELL TUMOR	0	0	0	1
-0B - SQUAMOUS PAPILLOMA	1	1	0	0
-0B - SEBACEOUS GLAND ADENOMA	0	1	0	1
SPLEEN				
SP.CORD,THORACIC				
TESTIS(ES)				
-0B - INTERSTITIAL CELL TUMOR	1	0	1	2
THYROID(S)				
-0B - C CELL ADENOMA	0	2	7 *	4
-0B- FOLLICULAR ADENOMA/CYSTADENOMA	2	0	1	1
-0M - FOLLICULAR CELL CARCINOMA	0	0	0	1
THYMUS	(8)	(15)	(10)	(14)
-0M - LYMPHOMA / LYMPHOSARCOMA	0	0	0	1
URINARY BLADDER				

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STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 3

PATHOLOGY SECTION

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 13-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: SCHEDULED SACRIFICES PERIODS: : 7-AUG-1989:10-AUG-1989

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED — MALES			
ANIMAL SEX :	MN	M1	M2	M3
DOSAGE GROUP:	14	19	17	17
NO. IN GROUP:				
SUBCUTIS	(0)	(1)	(3)	(2)
-0B - FIBROMA		0	1	1
-0M - FIBROSARCOMA		0	0	1
-0B - LIPOMA		1	2	0
ORAL CAVITY	(0)	(0)	(0)	(1)

CONTAINS TRADE SECRET
OR OTHERWISE
CONFIDENTIAL INFORMATION
OF MONSANTO COMPANY

STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 4

P A T H O L O G Y S E C T I O N

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 13-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: SCHEDULED SACRIFICES PERIODS: : 7-AUG-1989:10-AUG-1989

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED			
ANIMAL SEX :	FEMALES			
DOSAGE GROUP:	FN	F1	F2	F3
NO. IN GROUP:	22	22	17	18
ADRENAL(S)				
-#B - CORTICAL ADENOMA	1	1	1	1
-#B - PHEOCHROMOCYTOMA	1	1	1	2
-#M - PHEOCHROMOCYTOMA	0	0	0	1
-#M - CORTICAL CARCINOMA	0	0	0	3
BRAIN				
BONE				
SP.CORD,CERVICAL				
CECUM				
DUODENUM				
EYE(S)				
KIDNEY(S)				
-#B - LIPOMA	0	1	1	0
LIVER	6	1	3	0
-#B - HEPATOCELLULAR ADENOMA	1	0	1	1
-#M - HEPATOCELLULAR CARCINOMA	1	0	0	0
-#B - CHOLANGIOMA				
LY.NODE,UNDESIG.	(1)	(0)	(0)	(0)
LUNG				
-#B - BRONCHOALVEOLAR ADENOMA	1	0	0	0
MAMMARY GLAND	11	15	13	14
-#B - ADENOMA/ADENOFIBROMA/FIBROMA	8	6	4	5
-#M - CARCINOMA/ADENOCARCINOMA				
LY.NODE,MESENT.	(0)	(1)	(0)	(0)
MESENTERY/OM'TUM		1		
-#B - LIPOMA				

CONTAINS TRADE SECRET
OR OTHERWISE
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OF MONSANTO COMPANY

STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 5

PATHOLOGY SECTION

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 13-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: SCHEDULED SACRIFICES PERIODS: : 7-AUG-1989:10-AUG-1989

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED			
ANIMAL SEX :	FEMALES			
DOSAGE GROUP:	FN	F1	F2	F3
NO. IN GROUP:	22	22	17	18
NOSE/TURBINATES				
OVARY(IES)				(17)
-#B - GRANULOSA CELL TUMOR	0	1	0	0
PANCREAS				
-#B - ISLET CELL ADENOMA	2	1	1	0
PAWS/FEET	(2)	(2)	(2)	(2)
PITUITARY				
-#B - ADENOMA, PARS DISTALIS	19	19	15	11
PARATHYROID(S)				
-#B - ADENOMA	0	1	1	0
SKIN				
-#M - SQUAMOUS CELL CARCINOMA	0	0	0	1
-#B - CLITORAL GLAND ADENOMA	1	0	0	0
SPLEEN				
SP.CORD,THORACIC				
THYROID(S)				
-#B - C CELL ADENOMA	2	2	5	4
-#B- FOLLICULAR ADENOMA/CYSTADENOMA	1	0	0	0
-#M - FOLLICULAR CELL CARCINOMA	0	0	0	1
THYMUS	(14)	(19)	(9)	(11)
-#M - LYMPHOMA / LYMPHOSARCOMA	2	3	0	0
URINARY BLADDER		(21)	(16)	(17)
-#B - POLYP/PAPILLOMA	0	0	1	0
UTERUS				(17)
-#B - POLYP	1	2	0	1
-#B - ADENOMA, ENDOMETRIAL	0	2	0	0
-#B - LEIOMYOMA	1	0	0	0

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OF MONSANTO COMPANY

THIS REPORT GENERATED FROM DATA LOCKED THRU 12-JUN-90

STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 6
PATHOLOGY SECTION
STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 13-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***
SELECTION CRITERIA: SCHEDULED SACRIFICES PERIODS: : 7-AUG-1989:10-AUG-1989

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED			
ANIMAL SEX :	FEMALES			
DOSAGE GROUP:	FN	F1	F2	F3
NO. IN GROUP:	22	22	17	18
UTERUS				(17)
VAGINA	(0)	(0)	(0)	(3)
-0B - FIBROMA				1
SUBCUTIS	(1)	(0)	(2)	(3)
-0M - FIBROUS HISTIOCYTOMA	1		0	0
-0B - FIBROMA	0		0	2
-0B - LIPOMA	0		2	1

NOTE: A NUMBER IN PARENTHESES OPPOSITE A TISSUE NAME INDICATES THE TOTAL NUMBER EXAMINED WHEN LESS THAN THE NUMBER OF ANIMALS IN THE GROUP.

* = SIGNIFICANTLY DIFFERENT [P LESS THAN OR EQUAL TO 0.05] FROM CONTROL USING FISHER'S EXACT TEST WITH THE BONFERRONI INEQUALITY.
** = SIGNIFICANTLY DIFFERENT [P LESS THAN OR EQUAL TO 0.01] FROM CONTROL USING FISHER'S EXACT TEST WITH THE BONFERRONI INEQUALITY.

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OF MONSANTO COMPANY

STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 1

P A T H O L O G Y S E C T I O N

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 13-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: UNSCHEDULED DEATHS

T I S S U E S W I T H F I N D I N G S	NUMBER OF ANIMALS AFFECTED			
ANIMAL SEX :	MALES			
DOSAGE GROUP:	MN	M1	M2	M3
NO. IN GROUP:	36	31	33	33
ADRENAL(S)		(29)		
-#B - CORTICAL ADENOMA	0	0	1	1
-#B - PHEOCHROMOCYTOMA	5	1	2	5
-#M - PHEOCHROMOCYTOMA	0	1	2	0
-#M - GANGLIONEUROMA/PHEOCHROMOCYTOMA	0	0	1	0
BRAIN				
-#M - ASTROCYTOMA	0	1	1	1
BONE		(30)		
-#M - OSTEOSARCOMA	0	0	0	1
SP.CORD,CERVICAL			(32)	(32)
-#M - ASTROCYTOMA	0	0	1	0
-#M - GLIOMA	0	1	0	0
CECUM	(31)	(27)	(29)	(26)
PERITONEAL CAV.	(0)	(0)	(0)	(1)
-#M - MALIGNANT FIBROUS HISTIOCYTOMA				1
DUODENUM	(34)	(26)	(32)	(32)
-#M - ADENOCARCINOMA	1	0	0	0
EYE(S)				
KIDNEY(S)				
-#B - LIPOMA	1	0	0	0
-#M - LIPOSARCOMA	0	1	0	0
-#M - MESENCHYMAL TUMOR	0	1	0	0
-#B - TUBULAR ADENOMA	0	1	0	0
LIVER				
-#B - HEPATOCELLULAR ADENOMA	2	1	0	4
-#M - HEPATOCELLULAR CARCINOMA	2	1	1	2
-#M - HISTIOCYTIC SARCOMA	0	1	0	1
-#M - NEOPLASM, UNDETERMINED ORIGIN	0	1	0	0
LUNG				

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STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 2

PATHOLOGY SECTION

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 13-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: UNSCHEDULED DEATHS

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED			
ANIMAL SEX :	MALES			
DOSAGE GROUP:	MN	M1	M2	M3
NO. IN GROUP:	36	31	33	33
MAMMARY GLAND	(24)	(14)	(24)	(20)
-#B - ADENOMA/ADENOFIBROMA/FIBROMA	0	0	0	1
-#M - ADENOACANTHOMA	0	0	0	1
LY.NODE,MESENT.	(33)		(32)	(29)
MESENTERY/OM'TUM	(6)	(2)	(5)	(4)
-#M - MESOTHELIOMA	0	1	0	1
NERVE, UNDESIG.	(0)	(0)	(0)	(1)
-#B - NEUROFIBROMA (SCHWANNOMA)				1
NOSE/TURBINATES		(30)		
PANCREAS	(34)	(28)		(32)
-#B - ISLET CELL ADENOMA	1	4	2	4
PAWS/FEET	(6)	(6)	(7)	(3)
-#M - SARCOMA, UNDETERMINED CELL TYPE	0	0	1	0
PITUITARY		(29)	(31)	(32)
-#B - ADENOMA, PARS DISTALIS	19	15	19	19
-#B - ADENOMA, PARS INTERMEDIA	0	0	0	1
PROSTATE				
-#M - ADENOCARCINOMA	1	0	0	0
PARATHYROID(S)		(29)	(32)	
-#B - ADENOMA	1	1	0	2
SKIN				(32)
-#B - KERATOACANTHOMA	0	1	2	1
-#M - SQUAMOUS CELL CARCINOMA	2	0	0	0
-#M - CARCINOMA/ADENOCARCINOMA, ZYMBAL'S GLAND	1	0	0	0
-#M - FIBROUS HISTIOCYTOMA	0	0	1	0
-#B - ADENOMA, ZYMBAL'S GLAND	0	0	2	0
-#B - SQUAMOUS PAPILLOMA	0	0	1	0
-#B - FIBROMA	1	0	0	0
SPLEEN		(30)		

CONTAINS NO
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STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 3

P A T H O L O G Y S E C T I O N

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 13-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: UNSCHEDULED DEATHS

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED			
ANIMAL SEX :	MALES			
DOSAGE GROUP:	MN	M1	M2	M3
NO. IN GROUP:	36	31	33	33
SPLEEN		(30)		
TAIL	(1)	(0)	(0)	(0)
-#B- INTRACUTANEOUS CORNIFYING EPITHELIOMA	1			
SP.CORD,THORACIC				
-#M - ASTROCYTOMA	0	0	1	0
TESTIS(ES)				
-#B - INTERSTITIAL CELL TUMOR	1	0	2	0
THYROID(S)		(29)	(31)	
-#B - C CELL ADENOMA	0	2	1	1
-#M - C CELL CARCINOMA	0	2	0	1
-#B- FOLLICULAR ADENOMA/CYSTADENOMA	0	1	2	1
THYMUS	(22)	(14)	(17)	(20)
-#M - LYMPHOMA / LYMPHOSARCOMA	1	0	0	0
URINARY BLADDER	(35)			
SUBCUTIS	(6)	(1)	(1)	(3)
-#M - FIBROUS HISTIOCYTOMA	2	0	0	0
-#B - FIBROMA	2	0	0	2
-#M - FIBROSARCOMA	1	0	0	0
-#B - LIPOMA	1	0	0	0
-#M - SQUAMOUS CELL CARCINOMA	0	0	0	1
G I TRACT	(1)	(0)	(0)	(0)
-#M - MUCINOUS ADENOCARCINOMA	1			
TOOTH	(1)	(1)	(0)	(0)
-#M - ODONTOGENIC TUMOR	1	0		
-#B - ODONTOGENIC TUMOR	0	1		
MULTIPLE TISSUES	(1)	(1)	(0)	(0)
-#M - FIBROUS HISTIOCYTOMA	1	0		
-#M - LYMPHOMA/LYMPHOSARCOMA	0	1		

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STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 4

P A T H O L O G Y S E C T I O N

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 13-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: UNSCHEDULED DEATHS

T I S S U E S W I T H F I N D I N G S	NUMBER OF ANIMALS AFFECTED — FEMALES			
ANIMAL SEX :				
DOSAGE GROUP:	FN	F1	F2	F3
NO. IN GROUP:	28	28	33	32
ADRENAL(S)				
-#B - CORTICAL ADENOMA	0	1	1	0
-#B - PHEOCHROMOCYTOMA	0	0	1	0
BRAIN				
-#B - GRANULAR CELL TUMOR	0	1	0	0
BONE				
SP.CORD,CERVICAL				(31)
CECUM	(23)	(24)	(32)	(27)
-#M - NEUROFIBROSARCOMA	0	0	1	0
PERITONEAL CAV.	(0)	(0)	(1)	(0)
-#M - NEURO-ENDOCRINE TUMOR, GASTRIN SECRETING			1	
DUODENUM		(27)	(32)	(29)
EYE(S)				(31)
KIDNEY(S)				
-#M - TUBULAR CARCINOMA	0	1	0	0
-#B - HEMANGIOMA	1	0	0	0
LIVER				
-#B - HEPATOCELLULAR ADENOMA	0	1	2	1
-#M - HEPATOCELLULAR CARCINOMA	0	0	0	1
-#M - HISTIOCYTIC SARCOMA	0	0	1	0
-#M - HEMANGIOSARCOMA	0	0	1	0
LUNG				
MAMMARY GLAND	(27)	(24)	(32)	(30)
-#B - ADENOMA/ADENOFIBROMA/FIBROMA	14	9	11	14
-#M - CARCINOMA/ADENOCARCINOMA	6	4	9	4
-#M - CARCINOSARCOMA	1	0	0	1
LY.NODE,MESENT.		(27)	(32)	

OR OTHER
CONFIDENTIAL INFORMATION
OF A GENERIC COMPANY

STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 5

PATHOLOGY SECTION

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 13-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: UNSCHEDULED DEATHS

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED			
ANIMAL SEX :	FEMALES			
DOSAGE GROUP:	FN	F1	F2	F3
NO. IN GROUP:	28	28	33	32
MESENTERY/OM'TUM	(0)	(2)	(2)	(0)
NOSE/TURBINATES				
OVARY(IES)				
-#B - GRANULOSA CELL TUMOR	0	1	1	0
-#B - THECA CELL TUMOR	1	0	0	0
PANCREAS				(31)
-#B - ISLET CELL ADENOMA	3	0	3	0
PAWS/FEET	(0)	(1)	(0)	(1)
PITUITARY				(31)
-#B - ADENOMA, PARS DISTALIS	22	24	26	20
-#M - CARCINOMA, PARS DISTALIS	0	0	0	1
PARATHYROID(S)		(27)		
-#B - ADENOMA	2	0	1	0
SKIN	(27)	(24)		(30)
-#B - ADENOMA, ZYMBAL'S GLAND	0	0	1	0
-#B - BASAL CELL TUMOR	1	0	0	0
SPLEEN				
-#M - LYMPHOMA / LYMPHOSARCOMA	0	0	0	1
-#B - HEMANGIOMA	0	0	0	1
-#M - HEMANGIOSARCOMA	1	0	0	0
SP.CORD,THORACIC				
THYROID(S)				
-#B - C CELL ADENOMA	0	0	1	2
-#M - C CELL CARCINOMA	0	0	1	0
-#B- FOLLICULAR ADENOMA/CYSTADENOMA	0	0	0	1
THYMUS	(19)	(23)	(24)	(23)
-#M - LYMPHOMA / LYMPHOSARCOMA	3	0	1	1
URINARY BLADDER		(27)		

CONTAINS TRADE SECRET
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CONFIDENTIAL INFORMATION
OF MONSANTO COMPANY

STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 6

PATHOLOGY SECTION

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 13-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: UNSCHEDULED DEATHS

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED			
ANIMAL SEX :	FEMALES			
DOSAGE GROUP:	FN	F1	F2	F3
NO. IN GROUP:	28	28	33	32
UTERUS				
-#B - POLYP	0	0	2	1
-#B-VASCULAR HAMARTOMA	0	0	1	0
-#M - STROMAL SARCOMA	0	0	1	0
-#B - FIBROMA	1	0	0	0
VAGINA	(1)	(0)	(2)	(0)
SUBCUTIS	(3)	(0)	(2)	(3)
-#M - FIBROUS HISTIOCYTOMA	0		0	2
-#B - FIBROMA	1		1	0
-#M - FIBROSARCOMA	2		0	0
ORAL CAVITY	(0)	(1)	(1)	(1)
-#B - SQUAMOUS PAPILLOMA, PALATE		1	0	0
-#B - CHONDROMA, ALVEOLUS		0	0	1
-#M - GRANULAR CELL TUMOR		0	1	0
TOOTH	(0)	(1)	(0)	(0)

NOTE: A NUMBER IN PARENTHESES OPPOSITE A TISSUE NAME INDICATES THE TOTAL NUMBER EXAMINED WHEN LESS THAN THE NUMBER OF ANIMALS IN THE GROUP.

* = SIGNIFICANTLY DIFFERENT [P LESS THAN OR EQUAL TO 0.05] FROM CONTROL USING FISHER'S EXACT TEST WITH THE BONFERRONI INEQUALITY.

** = SIGNIFICANTLY DIFFERENT [P LESS THAN OR EQUAL TO 0.01] FROM CONTROL USING FISHER'S EXACT TEST WITH THE BONFERRONI INEQUALITY.

CONTAINS TRADE SECRET
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STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 1

PATHOLOGY SECTION

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 12-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: ALL DEATHS REPORTED

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED — MALES			
ANIMAL SEX :	MN	M1	M2	M3
DOSAGE GROUP:				
NO. IN GROUP:	60	60	60	60
ADRENAL(S)		(58)		
-#B - CORTICAL ADENOMA	0	0	1	2
-#B - PHEOCHROMOCYTOMA	5	7	6	8
-#M - PHEOCHROMOCYTOMA	0	1	3	0
-#M - GANGLIONEUROMA/PHEOCHROMOCYTOMA	0	0	1	0
BRAIN				
-#M - ASTROCYTOMA	0	1	1	1
BONE		(59)		(58)
-#M - OSTEOSARCOMA	0	0	0	1
SP.CORD,CERVICAL			(59)	(59)
-#M - ASTROCYTOMA	0	0	1	0
-#M - GLIOMA	0	2	0	0
CECUM	(55)	(56)	(55)	(53)
PERITONEAL CAV.	(0)	(0)	(0)	(1)
-#M - MALIGNANT FIBROUS HISTIOCYTOMA				1
DUODENUM	(58)	(55)	(59)	(59)
-#M - ADENOCARCINOMA	1	0	0	0
EYE(S)				
-#M - NEUROFIBROSARCOMA (SCHWANNOMA)	0	0	0	1
KIDNEY(S)				
-#B - LIPOMA	2	0	0	0
-#M - LIPOSARCOMA	0	1	1	0
-#M - MESENCHYMAL TUMOR	0	1	0	0
-#B - TUBULAR ADENOMA	0	2	0	0
LIVER				
-#B - HEPATOCELLULAR ADENOMA	3	2	3	8
-#M - HEPATOCELLULAR CARCINOMA	3	2	1	2
-#M - HISTIOCYTIC SARCOMA	0	1	0	1
-#M - NEOPLASM, UNDETERMINED ORIGIN	0	1	0	0
LUNG				

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P A T H O L O G Y S E C T I O N

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 12-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: ALL DEATHS REPORTED

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED — MALES			
ANIMAL SEX :	MN	M1	M2	M3
DOSAGE GROUP:	60	60	60	60
NO. IN GROUP:				
MAMMARY GLAND	(43)	(31)	(41)	(37)
-#B - ADENOMA/ADENOFIBROMA/FIBROMA	0	1	1	1
-#M - CARCINOMA/ADENOCARCINOMA	1	0	0	0
-#M - ADENOACANTHOMA	0	0	0	1
LY.NODE,MESENT.	(57)	(59)	(58)	(56)
-#B - HEMANGIOMA	0	0	0	1
MESENTERY/OM'TUM	(9)	(3)	(7)	(6)
-#M - MESOTHELIOMA	0	1	0	1
NERVE, UNDESIG.	(0)	(0)	(0)	(1)
-#B - NEUROFIBROMA (SCHWANNOMA)				1
NOSE/TURBINATES		(59)		(58)
-#B - PAPILLARY ADENOMA	0	0	0	1
PANCREAS	(58)	(57)		(59)
-#B - ISLET CELL ADENOMA	1	8 *	5	7
-#M - ISLET CELL CARCINOMA	1	0	0	0
PAWS/FEET	(12)	(15)	(12)	(11)
-#M - SARCOMA, UNDETERMINED CELL TYPE	0	0	1	0
PITUITARY		(58)	(58)	(59)
-#B - ADENOMA, PARS DISTALIS	34	32	34	31
-#B - ADENOMA, PARS INTERMEDIA	0	0	0	1
PROSTATE				
-#M - ADENOCARCINOMA	1	0	0	0
PARATHYROID(S)		(58)	(58)	(57)
-#B - ADENOMA	1	1	0	2
SKIN	(59)			(59)
-#B - KERATOACANTHOMA	1	3	4	5
-#M - SQUAMOUS CELL CARCINOMA	2	0	0	1
-#M - CARCINOMA/ADENOCARCINOMA, ZYMBAL'S GLAND	1	0	0	0
-#M - FIBROUS HISTIOCYTOMA	0	0	1	0

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PATHOLOGY SECTION

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 12-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: ALL DEATHS REPORTED

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED			
ANIMAL SEX :	MALES			
DOSAGE GROUP:	MN	M1	M2	M3
NO. IN GROUP:	60	60	60	60
SKIN	(59)			(59)
-#B - ADENOMA, ZYMBAL'S GLAND	0	0	2	0
-#B - BASAL CELL TUMOR	0	0	0	1
-#B - SQUAMOUS PAPILLOMA	1	1	1	0
-#B - SEBACEOUS GLAND ADENOMA	0	1	0	1
-#B - FIBROMA	1	0	0	0
SPLEEN		(59)		
TAIL	(1)	(0)	(0)	(0)
-#B- INTRACUTANEOUS CORNIFYING EPITHELIOMA	1			
SP.CORD,THORACIC				
-#M - ASTROCYTOMA	0	0	1	0
TESTIS(ES)				
-#B - INTERSTITIAL CELL TUMOR	2	0	3	2
THYROID(S)		(58)	(58)	
-#B - C CELL ADENOMA	2	4	8	7
-#M - C CELL CARCINOMA	0	2	0	1
-#B- FOLLICULAR ADENOMA/CYSTADENOMA	2	1	3	2
-#M - FOLLICULAR CELL CARCINOMA	0	0	0	1
THYMUS	(38)	(38)	(36)	(43)
-#M - LYMPHOMA / LYMPHOSARCOMA	1	0	0	1
URINARY BLADDER	(59)			
SUBCUTIS	(6)	(3)	(4)	(5)
-#M - FIBROUS HISTIOCYTOMA	2	0	0	0
-#B - FIBROMA	2	0	1	3
-#M - FIBROSARCOMA	1	0	0	1
-#B - LIPOMA	1	1	2	0
-#M - SQUAMOUS CELL CARCINOMA	0	0	0	1
G I TRACT	(1)	(0)	(0)	(0)
-#M - MUCINOUS ADENOCARCINOMA	1			
ORAL CAVITY	(0)	(0)	(0)	(1)

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PATHOLOGY SECTION

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 12-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: ALL DEATHS REPORTED

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED			
ANIMAL SEX :	MALES			
DOSAGE GROUP:	MN	M1	M2	M3
NO. IN GROUP:	60	60	60	60
ORAL CAVITY	(0)	(0)	(0)	(1)
TOOTH	(1)	(1)	(0)	(0)
-#M - ODONTOGENIC TUMOR	1	0		
-#B - ODONTOGENIC TUMOR	0	1		
MULTIPLE TISSUES	(1)	(1)	(0)	(0)
-#M - FIBROUS HISTIOCYTOMA	1	0		
-#M - LYMPHOMA/LYMPHOSARCOMA	0	1		

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PATHOLOGY SECTION

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 12-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: ALL DEATHS REPORTED

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED			
ANIMAL SEX :	FEMALES			
DOSAGE GROUP:	FN	F1	F2	F3
NO. IN GROUP:	60	60	60	60
ADRENAL(S)				
-#B - CORTICAL ADENOMA	1	3	2	1
-#B - PHEOCHROMOCYTOMA	1	1	2	2
-#M - PHEOCHROMOCYTOMA	0	0	0	1
-#M - CORTICAL CARCINOMA	0	0	0	3
BRAIN				
-#B - GRANULAR CELL TUMOR	0	1	0	0
BONE				
SP.CORD,CERVICAL				(59)
CECUM	(55)	(56)	(59)	(55)
-#M - NEUROFIBROSARCOMA	0	0	1	0
PERITONEAL CAV.	(0)	(0)	(1)	(0)
-#M - NEURO-ENDOCRINE TUMOR, GASTRIN SECRETING			1	
DUODENUM		(59)	(59)	(57)
EYE(S)				(59)
KIDNEY(S)				
-#B - LIPOMA	0	1	1	0
-#M - TUBULAR CARCINOMA	0	1	0	0
-#B - HEMANGIOMA	1	0	0	0
LIVER				
-#B - HEPATOCELLULAR ADENOMA	6	2	6	1
-#M - HEPATOCELLULAR CARCINOMA	1	0	1	2
-#M - HISTIOCYTIC SARCOMA	0	0	1	0
-#M - HEMANGIOSARCOMA	0	0	1	0
-#B - CHOLANGIOMA	1	0	0	0
LY.NODE,UNDESIG.	(1)	(0)	(0)	(0)
LUNG				
-#B - BRONCHOALVEOLAR ADENOMA	1	0	0	0

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P A T H O L O G Y S E C T I O N

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 12-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: ALL DEATHS REPORTED

T I S S U E S W I T H F I N D I N G S	NUMBER OF ANIMALS AFFECTED — FEMALES			
ANIMAL SEX :	FEMALES			
DOSAGE GROUP:	FN	F1	F2	F3
NO. IN GROUP:	60	60	60	60
MAMMARY GLAND	(58)	(54)	(59)	(57)
-#B - ADENOMA/ADENOFIBROMA/FIBROMA	25	24	27	28
-#M - CARCINOMA/ADENOCARCINOMA	13	10	14	9
-#M - CARCINOSARCOMA	1	0	0	1
LY.NODE,MESENT.		(59)	(59)	
MESENTERY/OM'TUM	(0)	(3)	(2)	(0)
-#B - LIPOMA		1	0	
NOSE/TURBINATES				
-#M - SQUAMOUS CELL CARCINOMA, NASOLACRIMAL DUCT	0	1	0	0
OVARY(IES)				(59)
-#B - GRANULOSA CELL TUMOR	0	2	1	0
-#B - THECA CELL TUMOR	1	0	0	0
PANCREAS				(59)
-#B - ISLET CELL ADENOMA	5	1	4	0
PAWS/FEET	(2)	(3)	(2)	(3)
PITUITARY				(59)
-#B - ADENOMA, PARS DISTALIS	45	48	48	34
-#M - CARCINOMA, PARS DISTALIS	1	0	0	1
PARATHYROID(S)	(59)	(57)	(59)	
-#B - ADENOMA	2	1	2	0
SKIN	(59)	(56)	(59)	(58)
-#M - SQUAMOUS CELL CARCINOMA	0	0	0	1
-#B - ADENOMA, ZYMBAL'S GLAND	0	0	1	0
-#B - BASAL CELL TUMOR	1	0	0	0
-#B - CLITORAL GLAND ADENOMA	1	0	0	0
SPLEEN				
-#M - LYMPHOMA / LYMPHOSARCOMA	0	0	0	1
-#B - HEMANGIOMA	0	0	0	1
-#M - HEMANGIOSARCOMA	1	0	0	0

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PATHOLOGY SECTION

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 12-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: ALL DEATHS REPORTED

TISSUES WITH FINDINGS	NUMBER OF ANIMALS AFFECTED			
ANIMAL SEX :	FEMALES			
DOSAGE GROUP:	FN	F1	F2	F3
NO. IN GROUP:	60	60	60	60
SP.CORD,THORACIC			(59)	
THYROID(S)				
-#B - C CELL ADENOMA	2	2	6	6
-#M - C CELL CARCINOMA	0	0	1	0
-#B- FOLLICULAR ADENOMA/CYSTADENOMA	1	0	0	1
-#M - FOLLICULAR CELL CARCINOMA	0	0	0	1
THYMUS	(43)	(51)	(39)	(44)
-#M - LYMPHOMA / LYMPHOSARCOMA	5	3	2	1
URINARY BLADDER		(58)	(59)	(59)
-#B - POLYP/PAPILLOMA	0	0	1	0
UTERUS				(59)
-#B - POLYP	1	2	2	2
-#B-VASCULAR HAMARTOMA	0	0	1	0
-#M - STROMAL SARCOMA	0	0	1	0
-#B - ADENOMA, ENDOMETRIAL	0	2	0	0
-#B - LEIOMYOMA	1	0	0	0
-#B - FIBROMA	1	0	0	0
VAGINA	(1)	(0)	(2)	(3)
-#B - FIBROMA	0		0	1
SUBCUTIS	(4)	(1)	(4)	(6)
-#M - FIBROUS HISTIOCYTOMA	1	1	0	2
-#B - FIBROMA	1	0	1	2
-#M - FIBROSARCOMA	2	0	0	0
-#B - LIPOMA	0	0	2	1
ORAL CAVITY	(0)	(1)	(1)	(1)
-#B - SQUAMOUS PAPILLOMA, PALATE		1	0	0
-#B - CHONDROMA, ALVEOLUS		0	0	1
-#M - GRANULAR CELL TUMOR		0	1	0
TOOTH	(0)	(1)	(0)	(0)

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STUDY NO: 87122 ***** MONSANTO ENVIRONMENTAL HEALTH LAB ***** PAGE: 8

P A T H O L O G Y S E C T I O N

STUDY TYPE: CH SPECIES: RAT SUBSTANCE: GLYPHOSATE PRINTED: 12-JUL-90

*** SUMMARY INCIDENCE OF HISTOPATHOLOGIC NEOPLASMS ***

SELECTION CRITERIA: ALL DEATHS REPORTED

NOTE: A NUMBER IN PARENTHESES OPPOSITE A TISSUE NAME INDICATES THE TOTAL NUMBER EXAMINED WHEN LESS THAN THE NUMBER OF ANIMALS IN THE GROUP.

* = SIGNIFICANTLY DIFFERENT [P LESS THAN OR EQUAL TO 0.05] FROM CONTROL USING FISHER'S EXACT TEST WITH THE BONFERRONI INEQUALITY.

** = SIGNIFICANTLY DIFFERENT [P LESS THAN OR EQUAL TO 0.01] FROM CONTROL USING FISHER'S EXACT TEST WITH THE BONFERRONI INEQUALITY.

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