

## APPENDIX F-1.

### Data Displays for the Malignancy Assessment

The following figures graphically display relationships between the dependent variables and measures of dioxin for the malignancy assessment. The panels are arranged as follows:

Panel	Group	Assumption	Dioxin Measure
a	Ranch Hand	Minimal	Initial
b	Ranch Hand	Maximal	Initial
c	Comparison	--	Current
d	Ranch Hand	--	Current

Dioxin measures are presented in original units, but spacing of intervals is based on the logarithm (base 2) scale, similar to the statistical analysis. The percent of participants that exhibited a specified neoplasm is displayed on the vertical axis for given intervals of dioxin. Sample sizes within a specified dioxin interval are presented below for several different sets of participants. The different sets of sample sizes reflect the various exclusions applied (e.g., Black participants not included in analyses of skin neoplasms) or the different types of constraints applied for the graphs in the malignancy assessment (e.g., investigating particular skin neoplasms for each occupation). Centered above each table of sample sizes is a descriptor that identifies the particular group of participants used for a specified graphic display. Applicable figures for these sample sizes are listed parenthetically below each centered descriptor. The figures in this Appendix, which follow the tables, are based on verified neoplasms only. That is, graphs were not produced on individual analyses presented in the main body of the report for participants with verified and suspected neoplasms. In particular, the following figures were based on participants with verified neoplasms only, although an analysis also was presented for participants with verified and suspected neoplasms: Figures F-1-1, F-1-2, F-1-4, F-1-31, F-1-32, F-1-33, F-1-36, F-1-44. Also, the figure for benign skin neoplasms (F-1-3) was based on non-Black participants only; a figure was not produced for Black and non-Black participants combined.

**Non-Black Participants**  
**(Figures F-1-1 to F-1-18; Note: NOS refers to**  
**not otherwise specified in Figure F-1-9)**

Panel

Dioxin Interval	Dioxin Scale Midpoint	Sample Size			
		a	b	c	d
0.0-0.5	0.25	0	0	36	8
>0.5-2.0	1	0	0	25	8
>2.0-8.0	4	0	0	645	240
>8.0-32.0	16	0	23	48	381
>32.0-128.0	64	203	395	1	150
>128.0-512.0	256	219	219	0	33
>512.0-2,048.0	1024	64	64	0	2
>2,048.0	4096	3	3	0	0

**Non-Black Officers Only**  
**Neoplasm on Ear, Face, Head, and Neck or No Neoplasm**  
**(Figures F-1-19; F-1-25)**

Panel

Dioxin Interval	Dioxin Scale Midpoint	Sample Size			
		a	b	c	d
0.0-0.5	0.25	0	0	13	3
>0.5-2.0	1	0	0	3	5
>2.0-8.0	4	0	0	246	152
>8.0-32.0	16	0	14	20	154
>32.0-128.0	64	88	206	0	2
>128.0-512.0	256	17	17	0	0
>512.0-2,048.0	1024	0	0	0	0
>2,048.0	4096	0	0	0	0

**Non-Black Officers Only**  
**Neoplasm on Other Sites or No Neoplasm**  
**(Figures F-1-20; F-1-26)**

Dioxin Interval	Dioxin Scale Midpoint	Panel			
		a	b	c	d
0.0-0.5	0.25	0	0	11	3
>0.5-2.0	1	0	0	3	5
>2.0-8.0	4	0	0	234	146
>8.0-32.0	16	0	14	20	133
>32.0-128.0	64	81	196	0	2
>128.0-512.0	256	16	16	0	0
>512.0-2,048.0	1024	0	0	0	0
>2,048.0	4096	0	0	0	0

**Non-Black Enlisted Flyers Only**  
**Neoplasm on Ear, Face, Head, and Neck or No Neoplasm**  
**(Figures F-1-21; F-1-27)**

Dioxin Interval	Dioxin Scale Midpoint	Panel			
		a	b	c	d
0.0-0.5	0.25	0	0	2	2
>0.5-2.0	1	0	0	4	1
>2.0-8.0	4	0	0	103	27
>8.0-32.0	16	0	2	7	77
>32.0-128.0	64	38	60	0	29
>128.0-512.0	256	53	53	0	1
>512.0-2,048.0	1024	7	7	0	0
>2,048.0	4096	0	0	0	0

**Non-Black Enlisted Flyers Only**  
**Neoplasm on Other Sites or No Neoplasm**  
**(Figures F-1-22; F-1-28)**

Dioxin Interval	Dioxin Scale Midpoint	Panel			
		a	b	c	d
0.0-0.5	0.25	0	0	2	2
>0.5-2.0	1	0	0	4	1
>2.0-8.0	4	0	0	96	24
>8.0-32.0	16	0	1	7	75
>32.0-128.0	64	36	57	0	32
>128.0-512.0	256	55	55	0	1
>512.0-2,048.0	1024	8	8	0	0
>2,048.0	4096	0	0	0	0

**Non-Black Enlisted Groundcrew Only**  
**Neoplasm on Ear, Face, Head, and Neck or No Neoplasm**  
**(Figures F-1-23; F-1-29)**

Dioxin Interval	Dioxin Scale Midpoint	Panel			
		a	b	c	d
0.0-0.5	0.25	0	0	19	3
>0.5-2.0	1	0	0	17	2
>2.0-8.0	4	0	0	288	54
>8.0-32.0	16	0	7	21	150
>32.0-128.0	64	73	119	1	113
>128.0-512.0	256	141	141	0	32
>512.0-2,048.0	1024	55	55	0	12
>2,048.0	4096	3	3	0	0

**Non-Black Enlisted Groundcrew Only  
Neoplasm on Other Sites or No Neoplasm  
(Figures F-1-24; F-1-30)**

Dioxin Interval	Dioxin Scale Midpoint	Panel			
		a	b	c	d
0.0-0.5	0.25	0	0	21	2
>0.5-2.0	1	0	0	18	2
>2.0-8.0	4	0	0	278	51
>8.0-32.0	16	0	6	21	145
>32.0-128.0	64	68	114	1	114
>128.0-512.0	256	142	142	0	32
>512.0-2,048.0	1024	55	55	0	2
>2,048.0	4096	3	3	0	0

**Non-Black Participants  
One Basal Cell Carcinoma or No Basal Cell Carcinoma  
(Figure F-1-31)**

Dioxin Interval	Dioxin Scale Midpoint	Panel			
		a	b	c	d
0.0-0.5	0.25	0	0	36	8
>0.5-2.0	1	0	0	25	8
>2.0-8.0	4	0	0	638	232
>8.0-32.0	16	0	22	48	370
>32.0-128.0	64	196	385	1	149
>128.0-512.0	256	215	215	0	33
>512.0-2,048.0	1024	64	64	0	2
>2,048.0	4096	3	3	0	0

**Non-Black Participants**  
**Multiple Basal Cell Carcinoma or No Basal Cell Carcinoma**  
**(Figure F-1-32)**

Dioxin Interval	Dioxin Scale Midpoint	Panel						
		a	b	c	d	e	f	g
0.0-0.5	0.25	0	0	0	0	33	7	
>0.5-2.0	1	0	0	0	0	24	8	
>2.0-8.0	4	0	0	0	0	607	224	
>8.0-32.0	16	0	0	22	10	48	357	
>32.0-128.0	64	189	68	369	64	1	143	
>128.0-512.0	256	209	143	209	256	0	33	
>512.0-2,048.0	1024	61	22	61	1024	0	2	
>2,048.0	4096	3	2	3	4096	0	0	

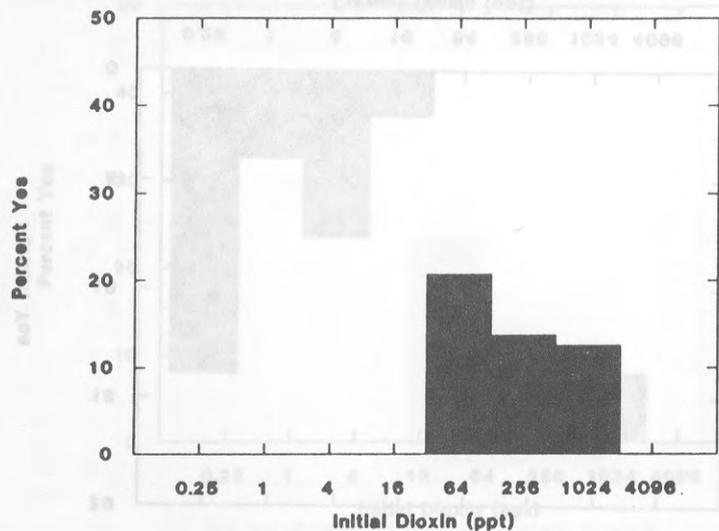
**All Participants**  
**(Figures F-1-33 to F-1-44)**

Dioxin Interval	Dioxin Scale Midpoint	Panel						
		a	b	c	d	e	f	g
0.0-0.5	0.25	0	0	0	0	42	8	
>0.5-2.0	1	0	0	0	0	28	8	
>2.0-8.0	4	0	0	0	0	681	249	
>8.0-32.0	16	0	0	23	16	52	408	
>32.0-128.0	64	219	196	417	64	1	158	
>128.0-512.0	256	234	212	234	256	0	33	
>512.0-2,048.0	1024	65	64	65	1024	0	2	
>2,048.0	4096	3	2	3	4096	0	0	

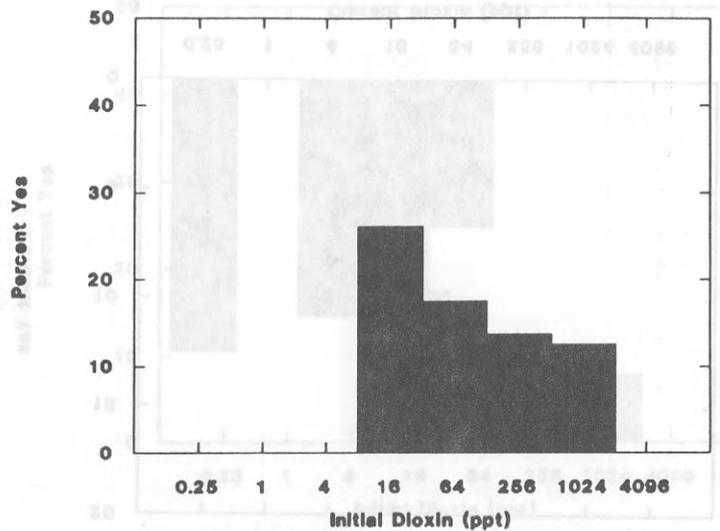
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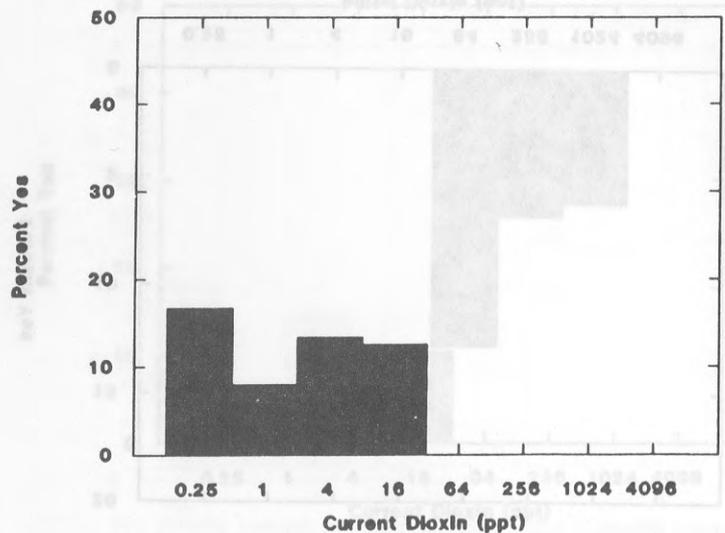
(a) Ranch Hands Minimal Assumption - Initial Dioxin



(b) Ranch Hands Maximal Assumption - Initial Dioxin



(c) All Comparisons - Current Dioxin



(d) All Ranch Hands - Current Dioxin

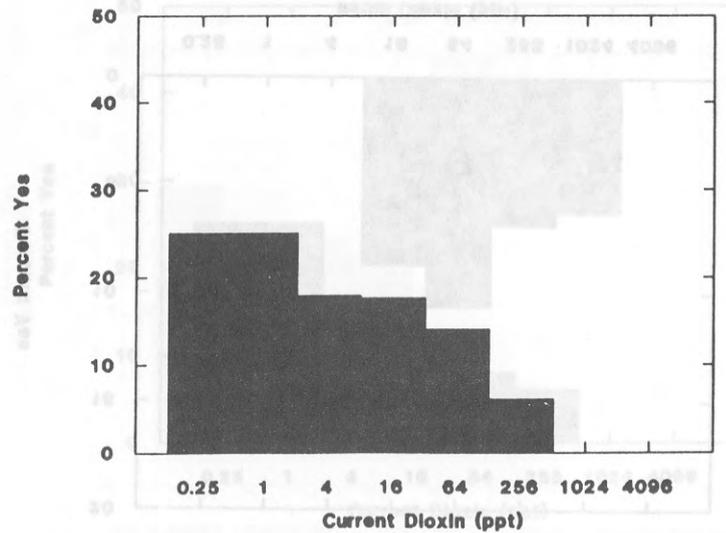


FIGURE F-1-1. All Skin Neoplasms versus Dioxin

F-1-10

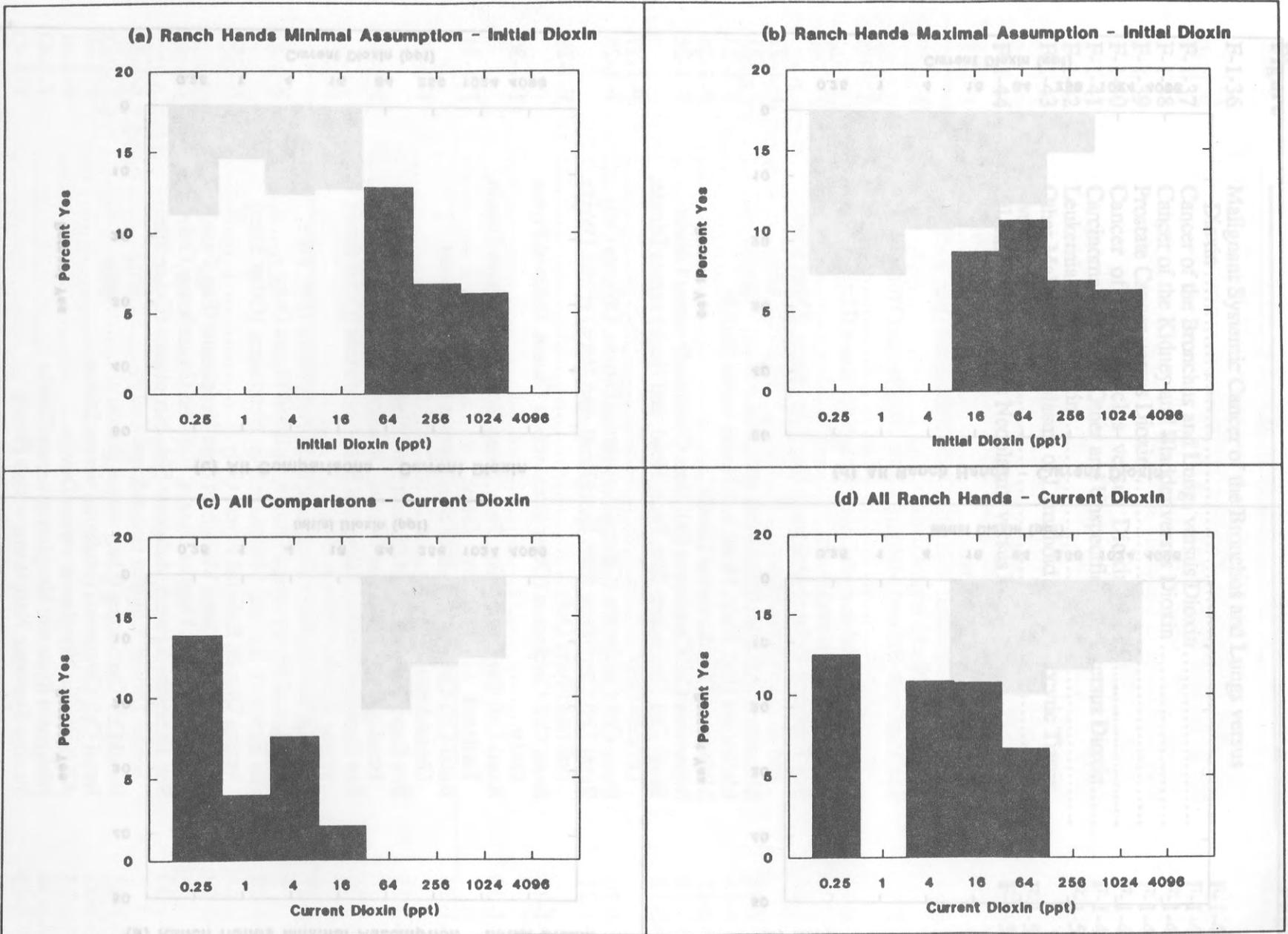


FIGURE F-1-2. Malignant Skin Neoplasms versus Dioxin

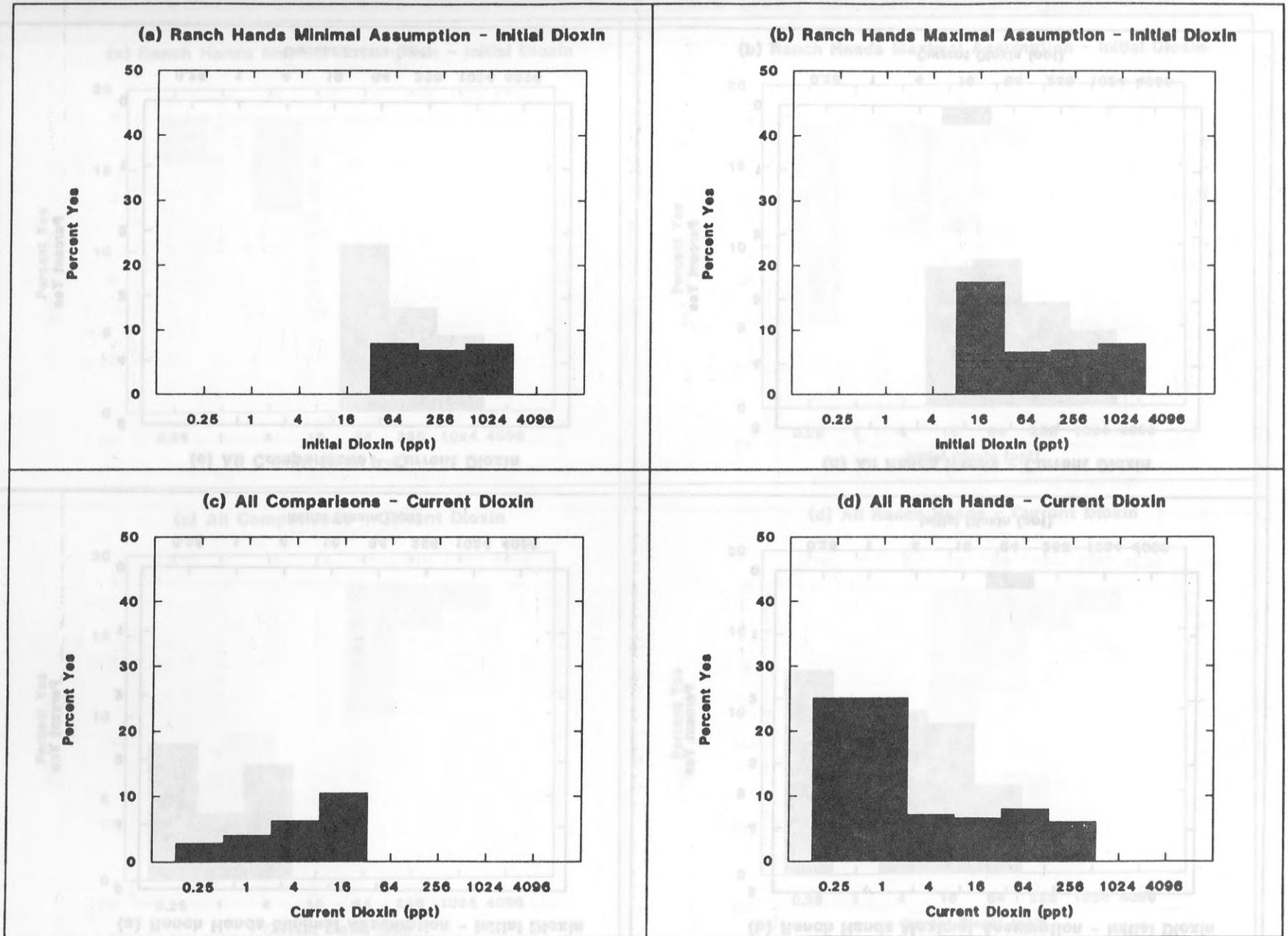


FIGURE F-1-3. Benign Skin Neoplasms versus Dioxin

F-1-12

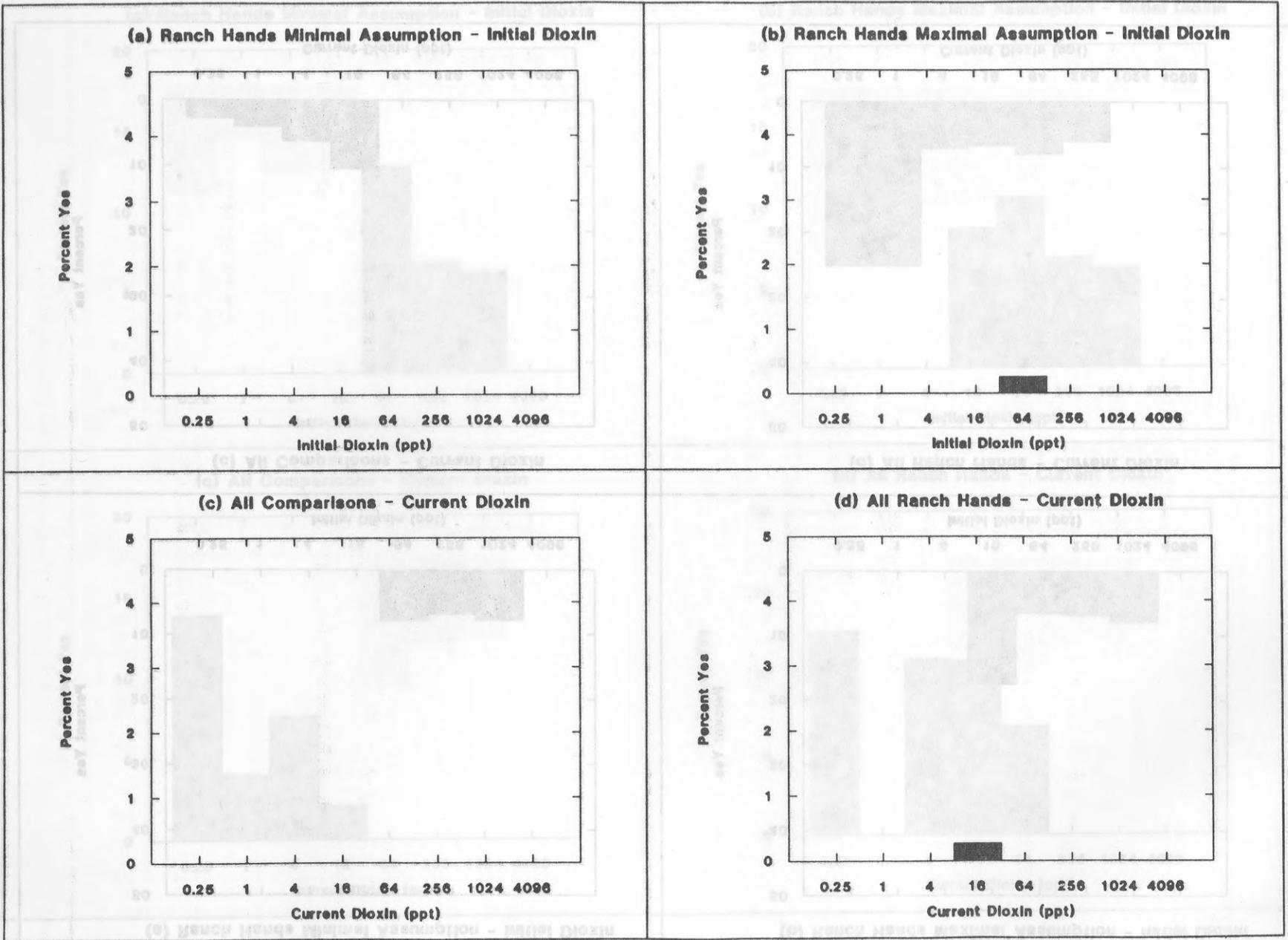
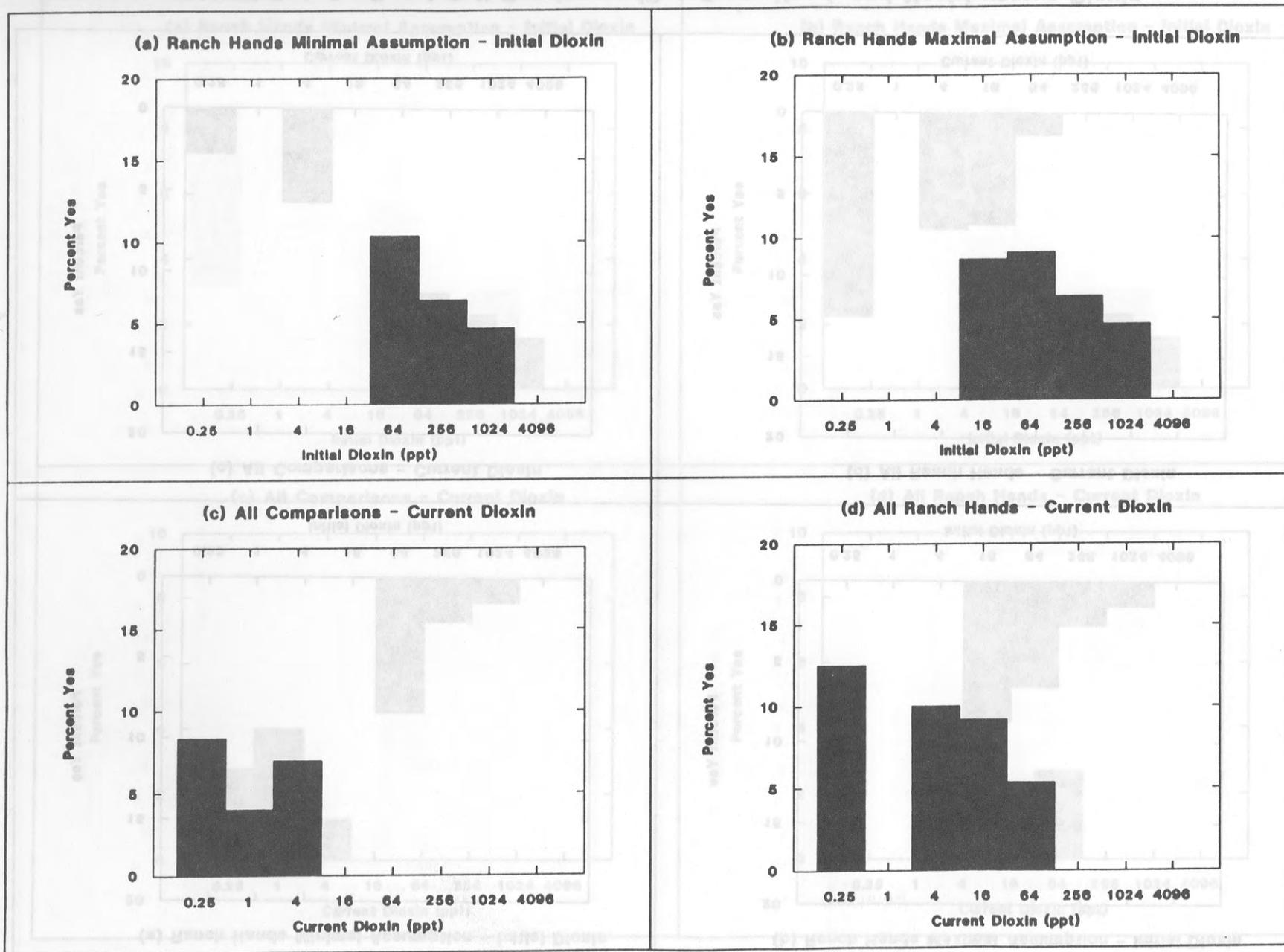


FIGURE F-1-4. Skin Neoplasms of Uncertain Behavior or Unspecified Nature versus Dioxin



**FIGURE F-1-5. Basal Cell Carcinoma (All Sites Combined) versus Dioxin**

F-1-14

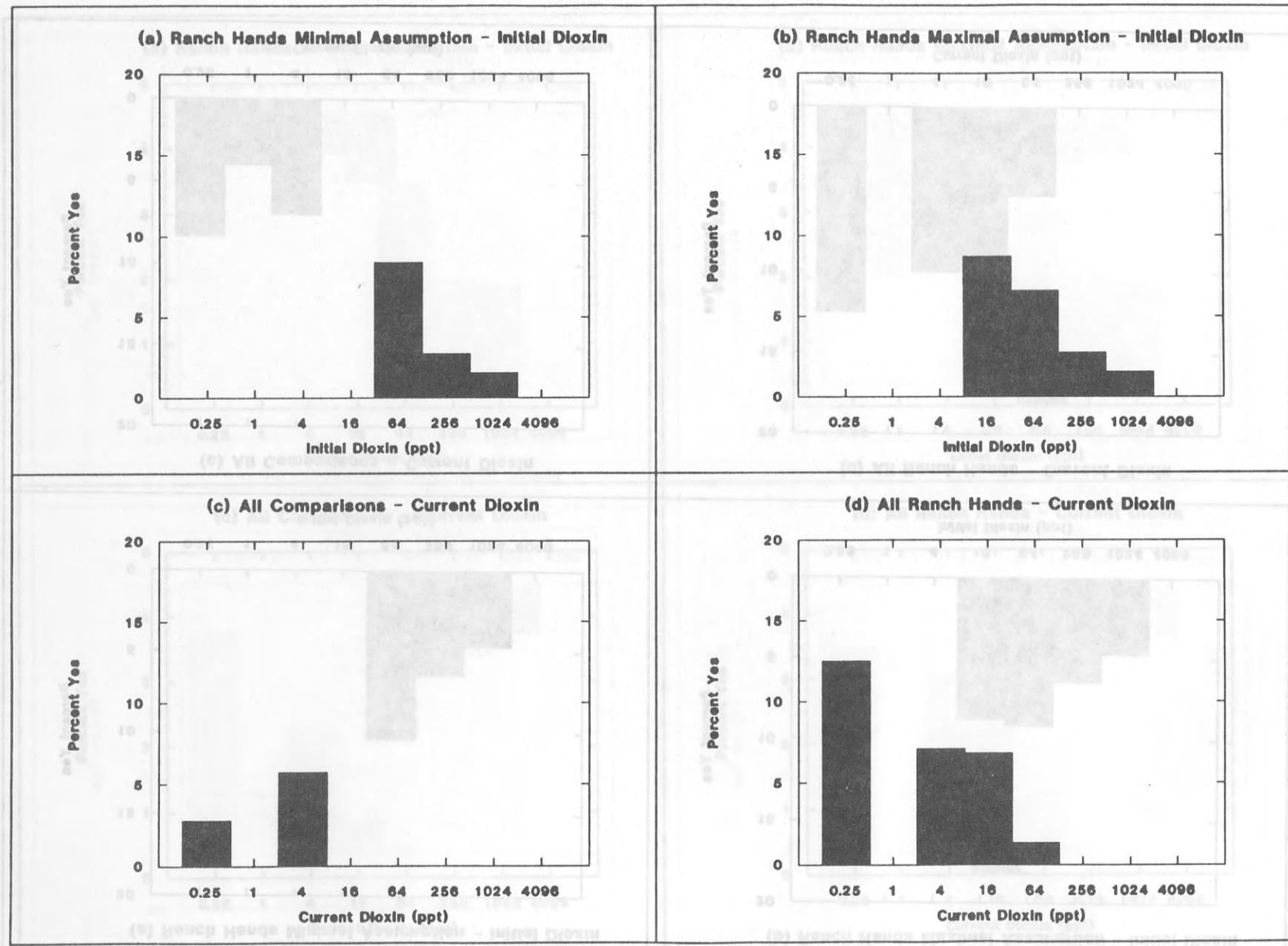


FIGURE F-1-6. Basal Cell Carcinoma (Ear, Face, Head, and Neck) versus Dioxin

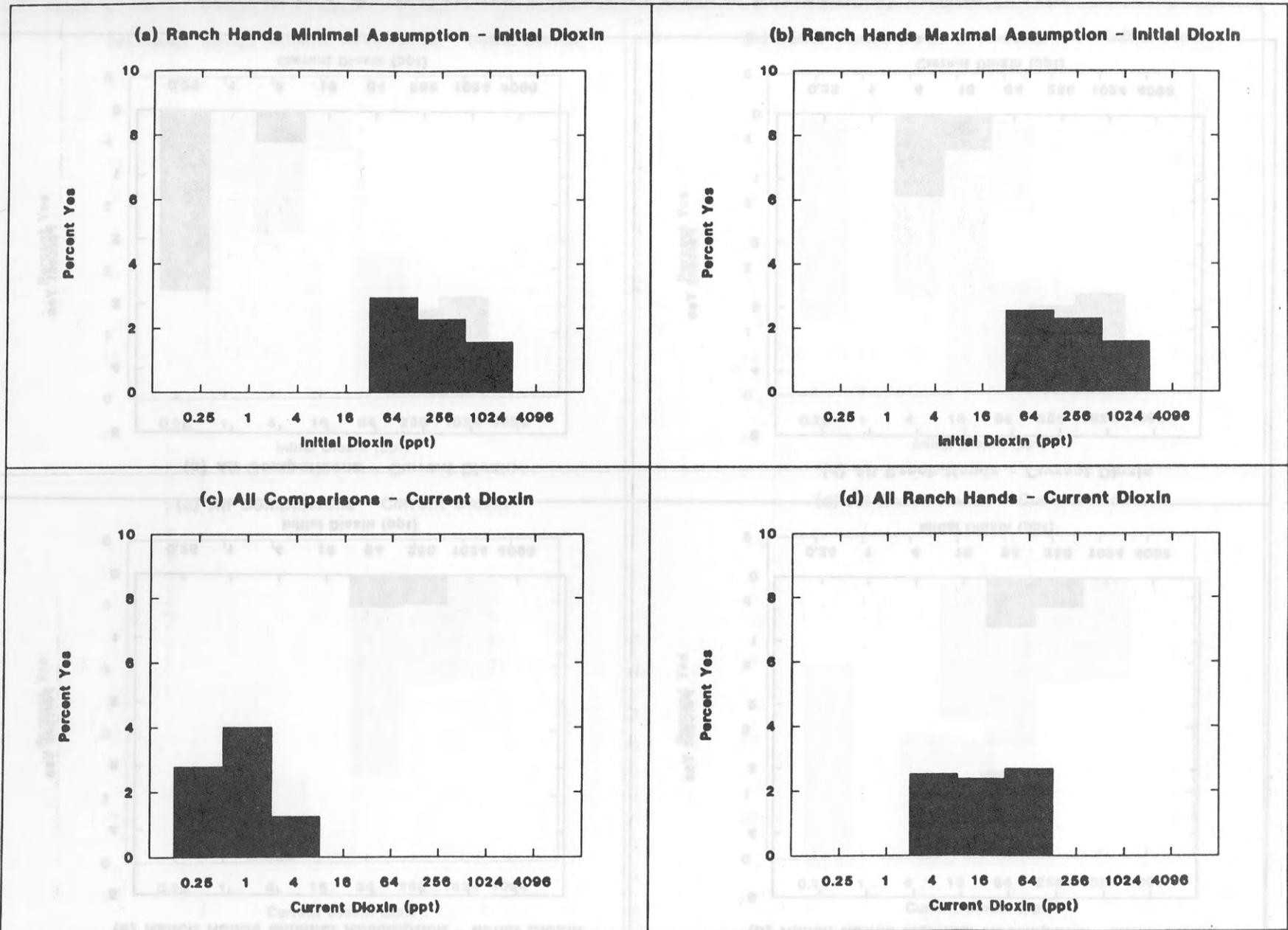
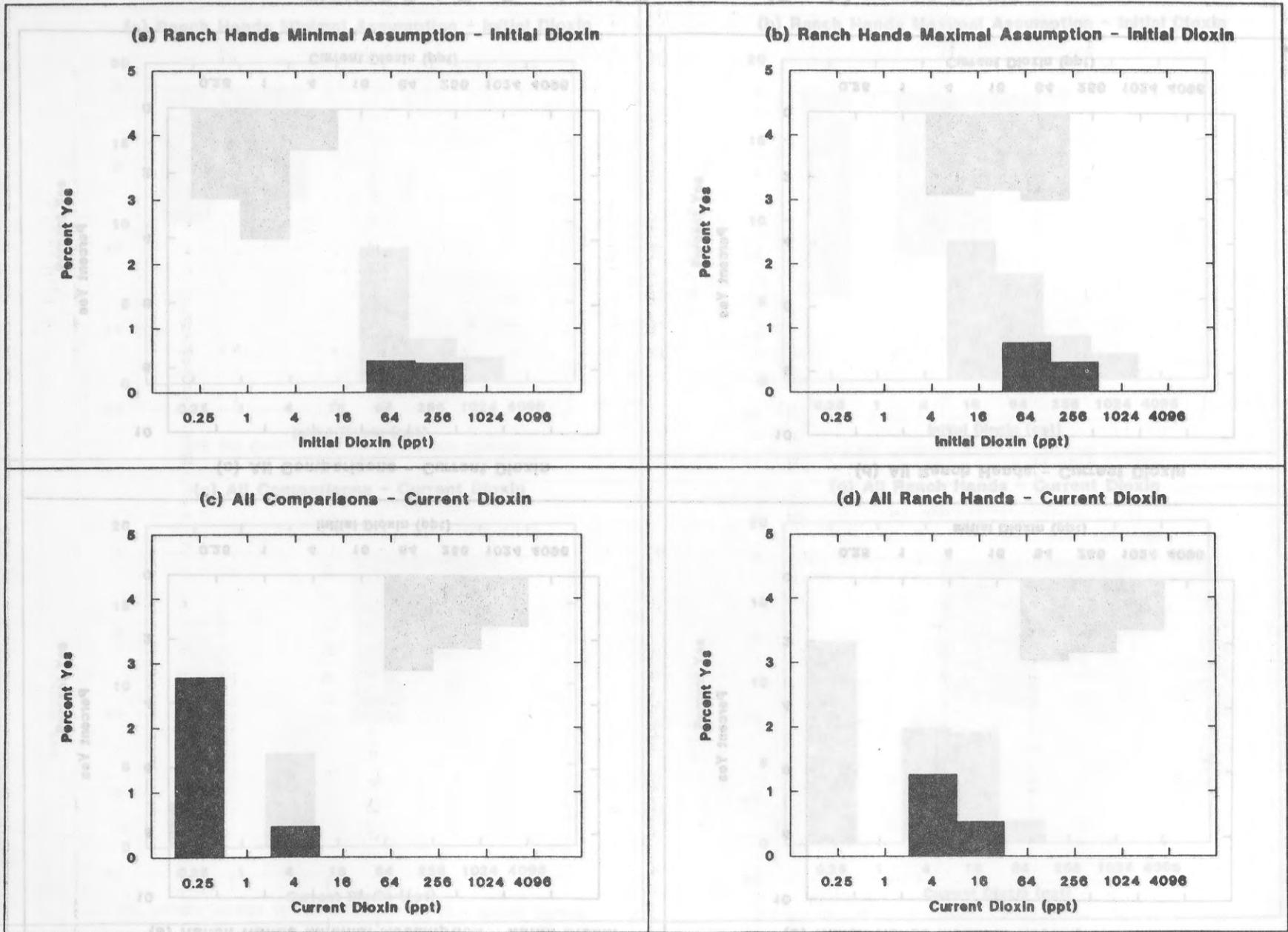
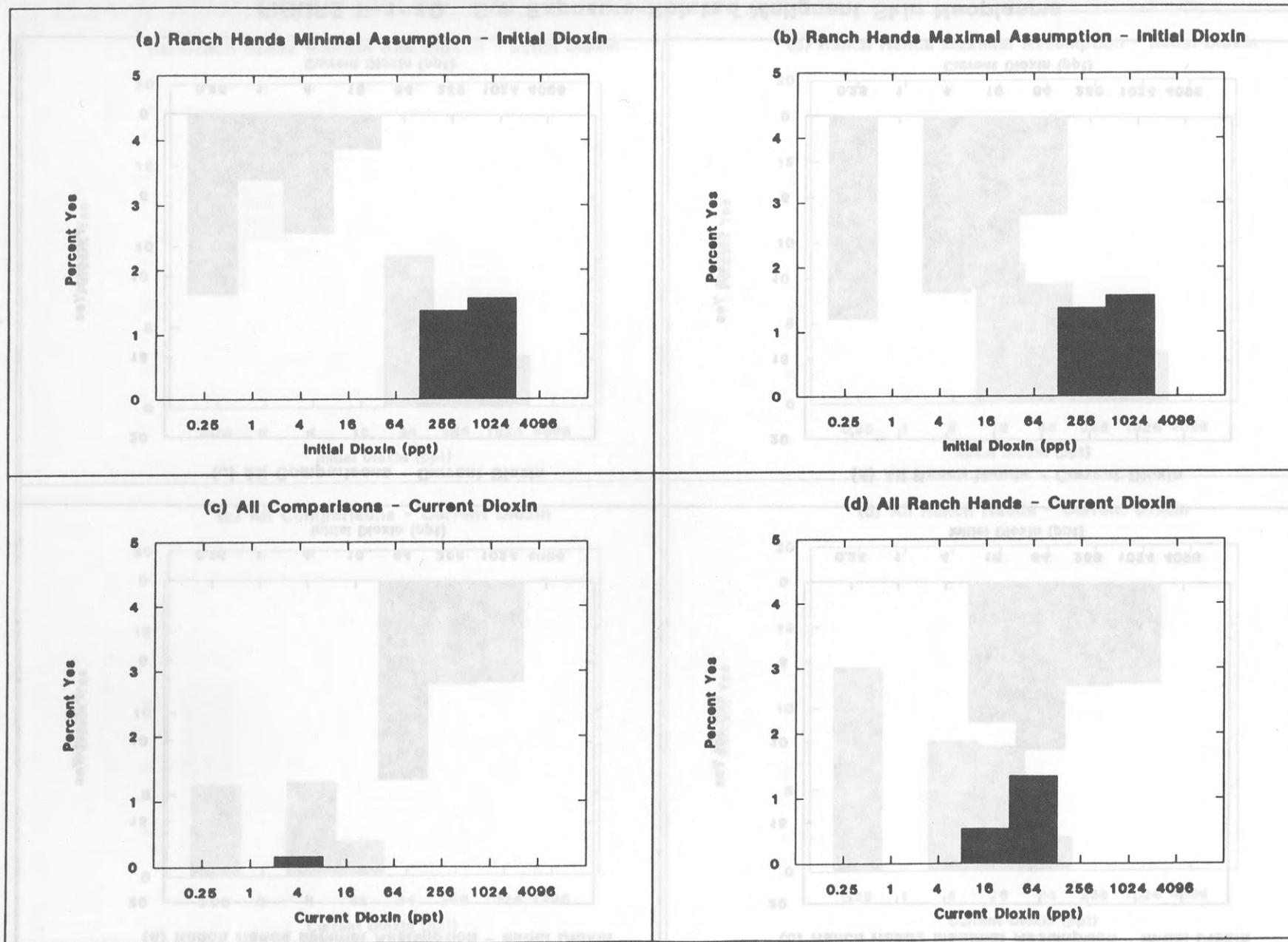


FIGURE F-1-7. Basal Cell Carcinoma (Trunk) versus Dioxin



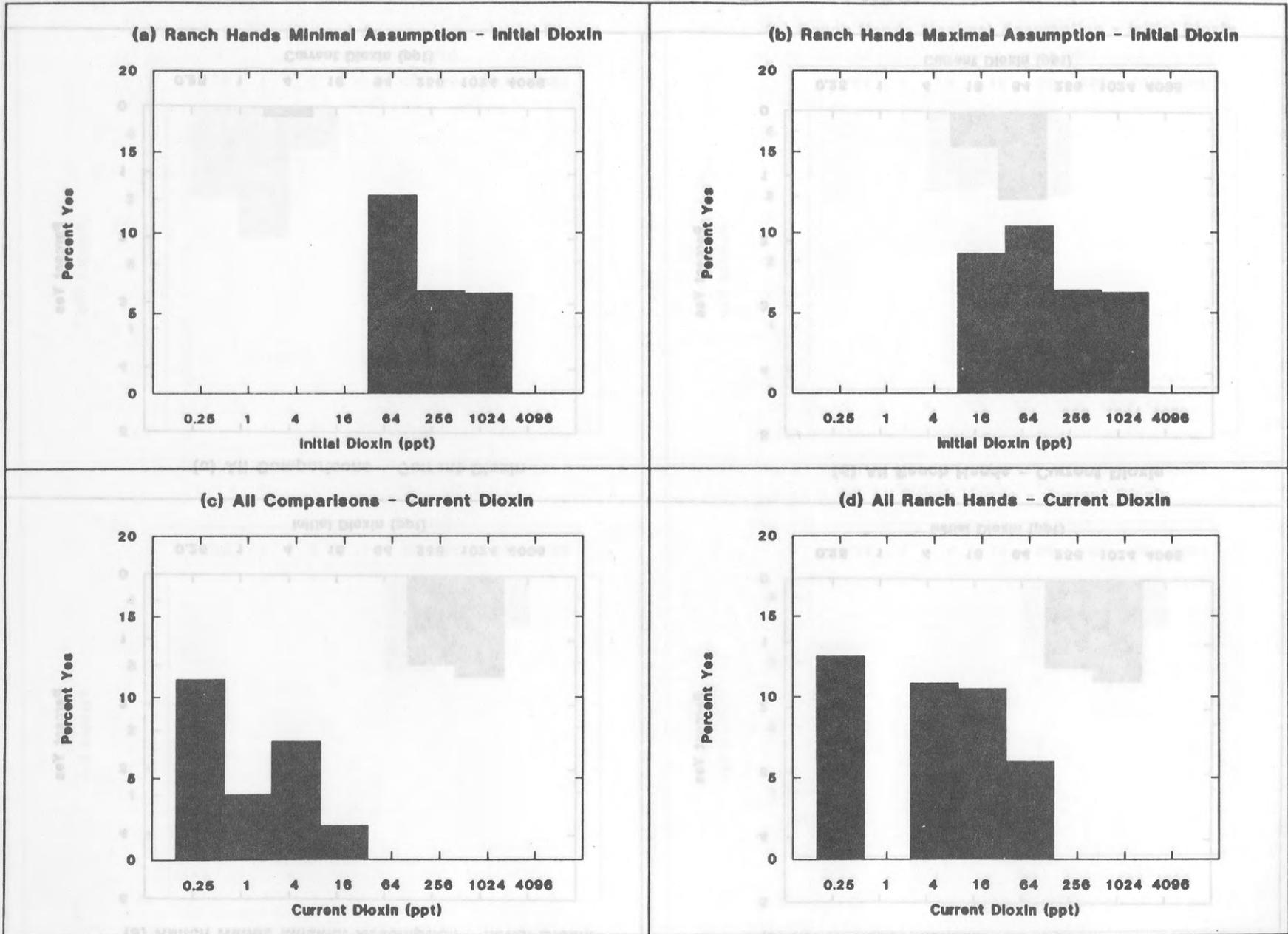
**FIGURE F-1-8. Basal Cell Carcinoma (Upper Extremities) versus Dioxin**



**FIGURE F-1-9. Basal Cell Carcinoma (Other Sites and NOS) versus Dioxin**

(Ear, Face, Head, and Neck) versus Dioxin

F-1-18



**FIGURE F-1-10. Sun Exposure-Related Malignant Skin Neoplasms (All Sites Combined) versus Dioxin**

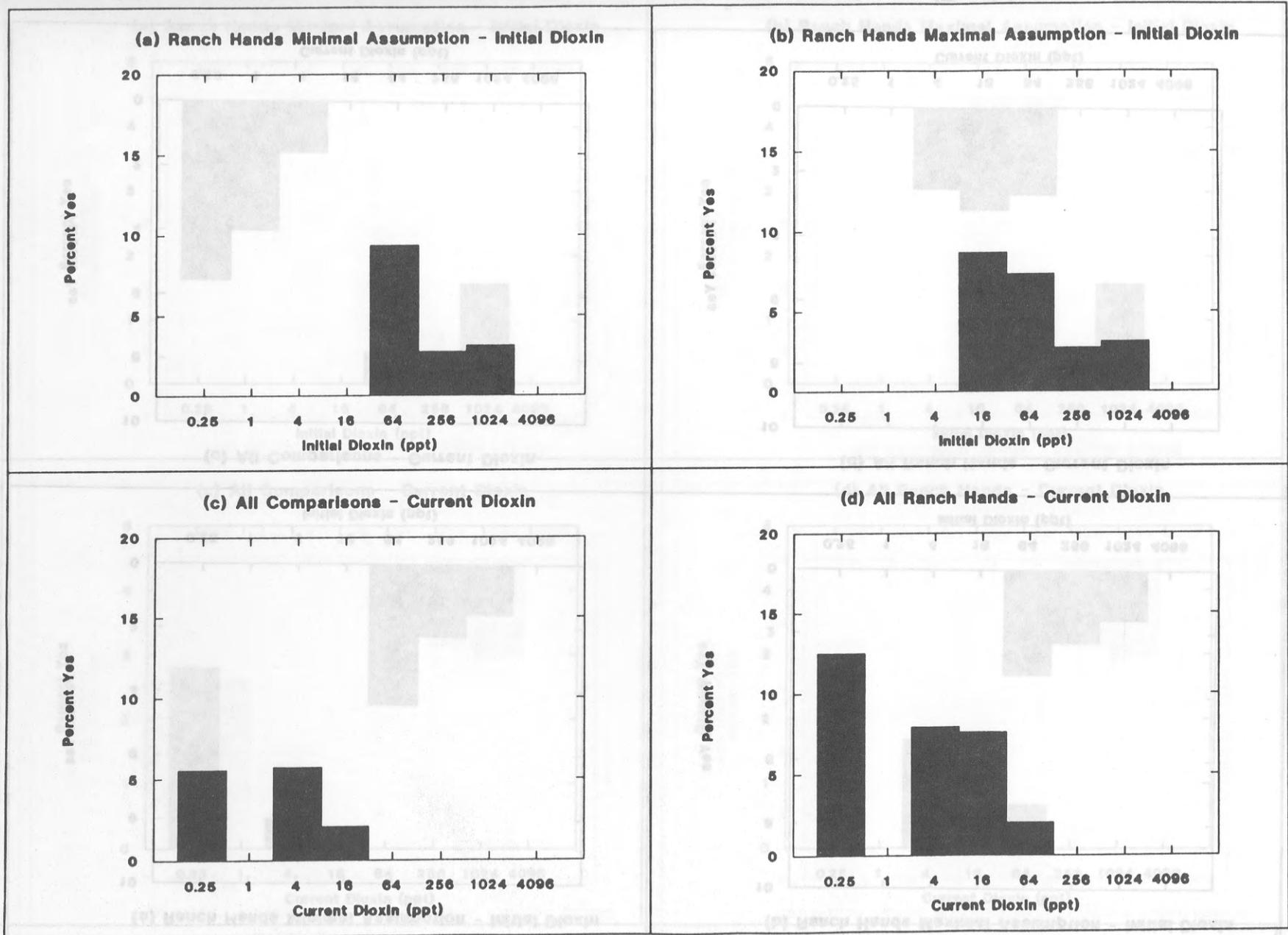


FIGURE F-1-11. Sun Exposure-Related Malignant Skin Neoplasms (Ear, Face, Head, and Neck) versus Dioxin



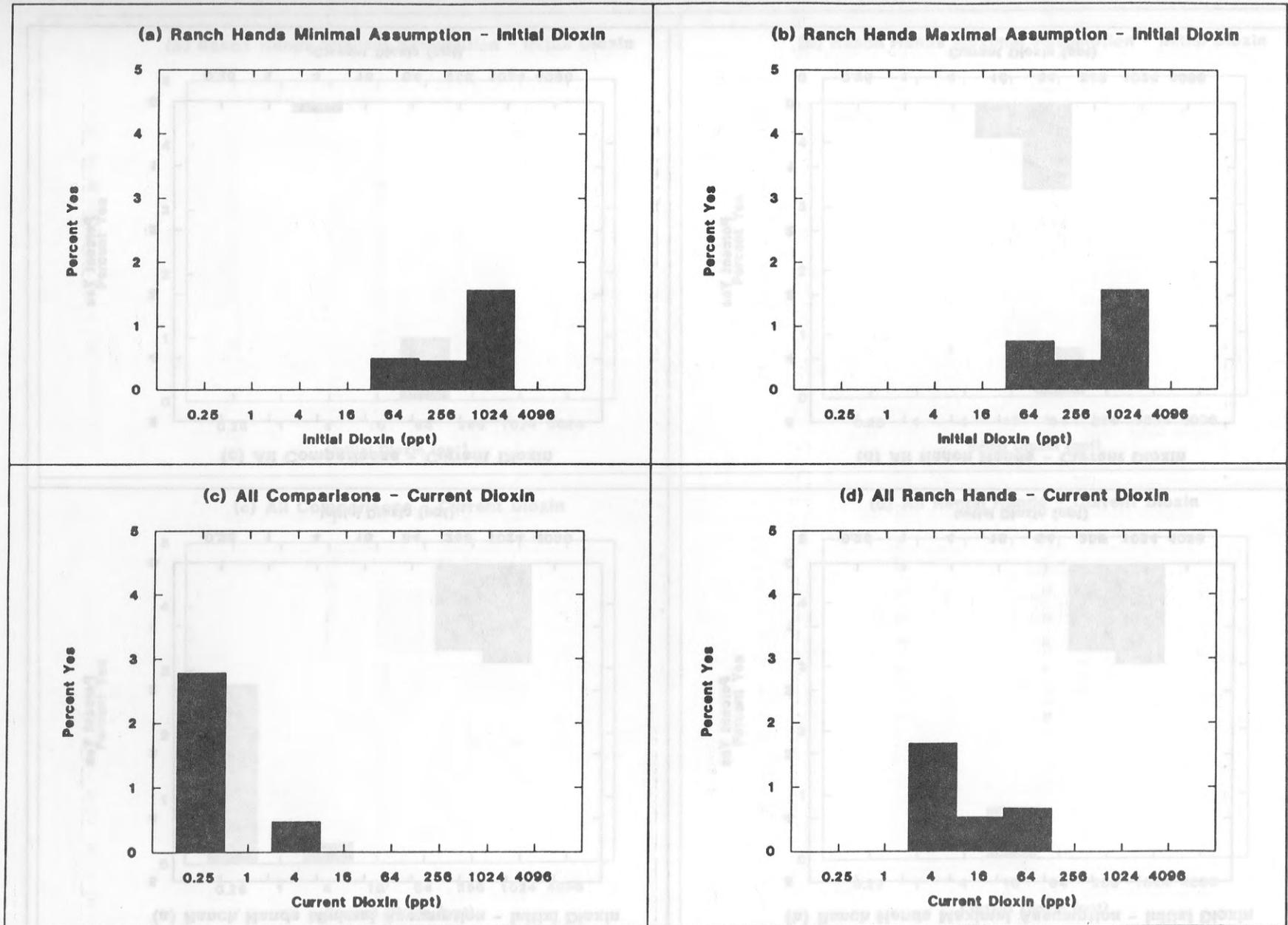
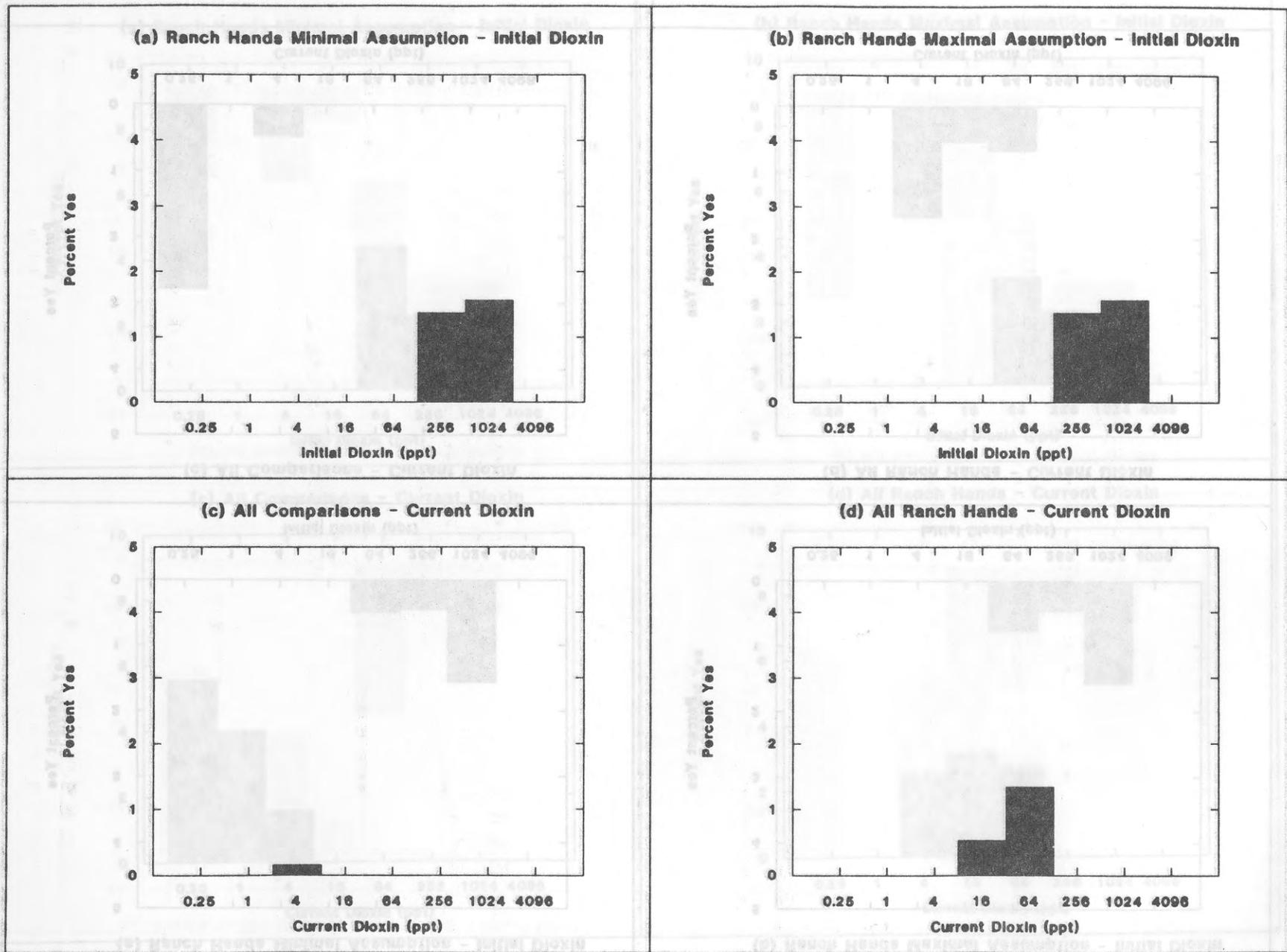


FIGURE F-1-13. Sun Exposure-Related Malignant Skin Neoplasms (Upper Extremities) versus Dioxin



F-1-22

FIGURE F-1-14. Sun Exposure-Related Malignant Skin Neoplasms (Other Sites and NOS) versus Dioxin

F-1-23

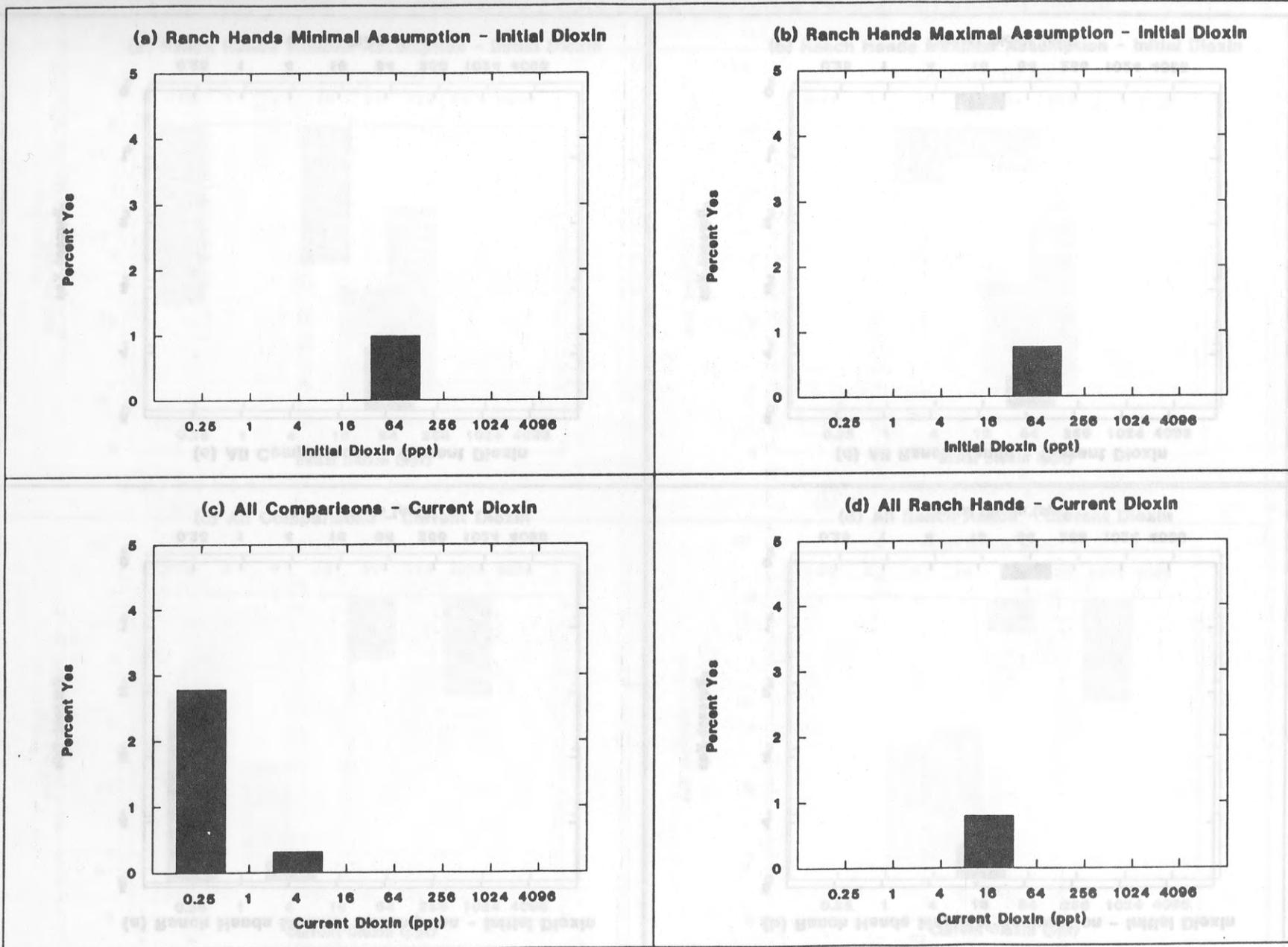
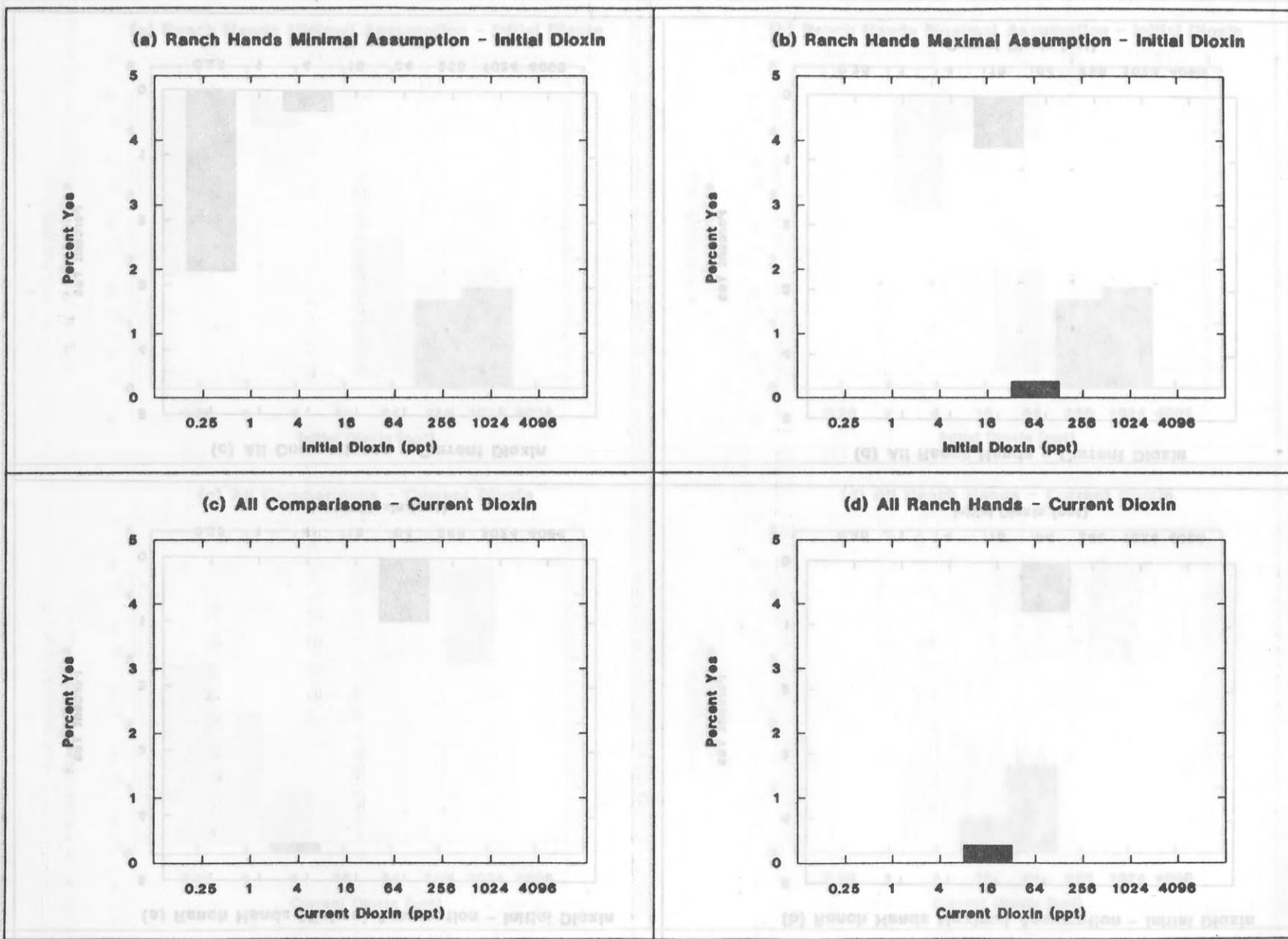


FIGURE F-1-15. Melanoma (All Sites Combined) versus Dioxin



F-1-24

FIGURE F-1-14. FIGURE F-1-16. Melanoma (Ear, Face, Head, and Neck) versus Dioxin

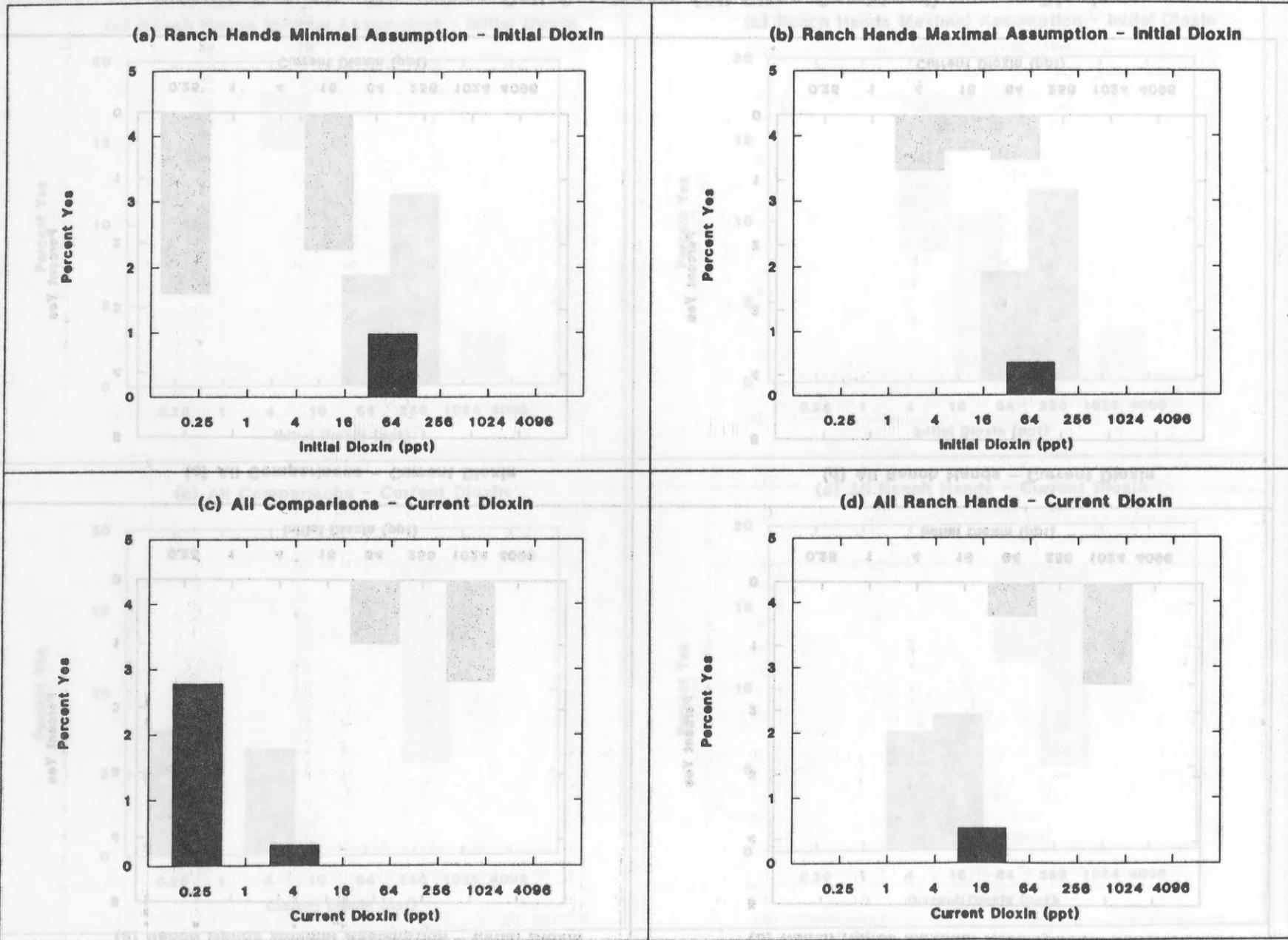
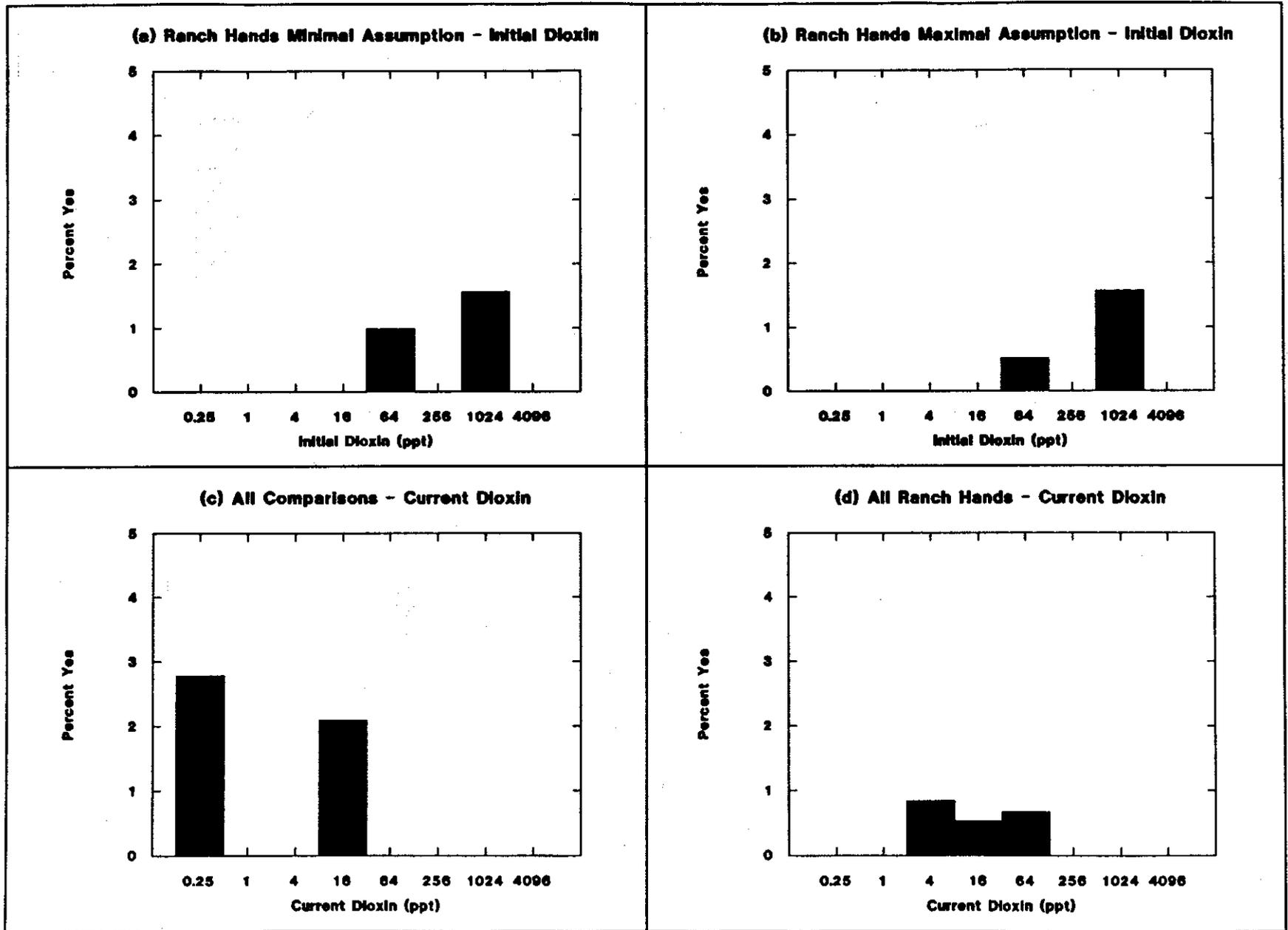
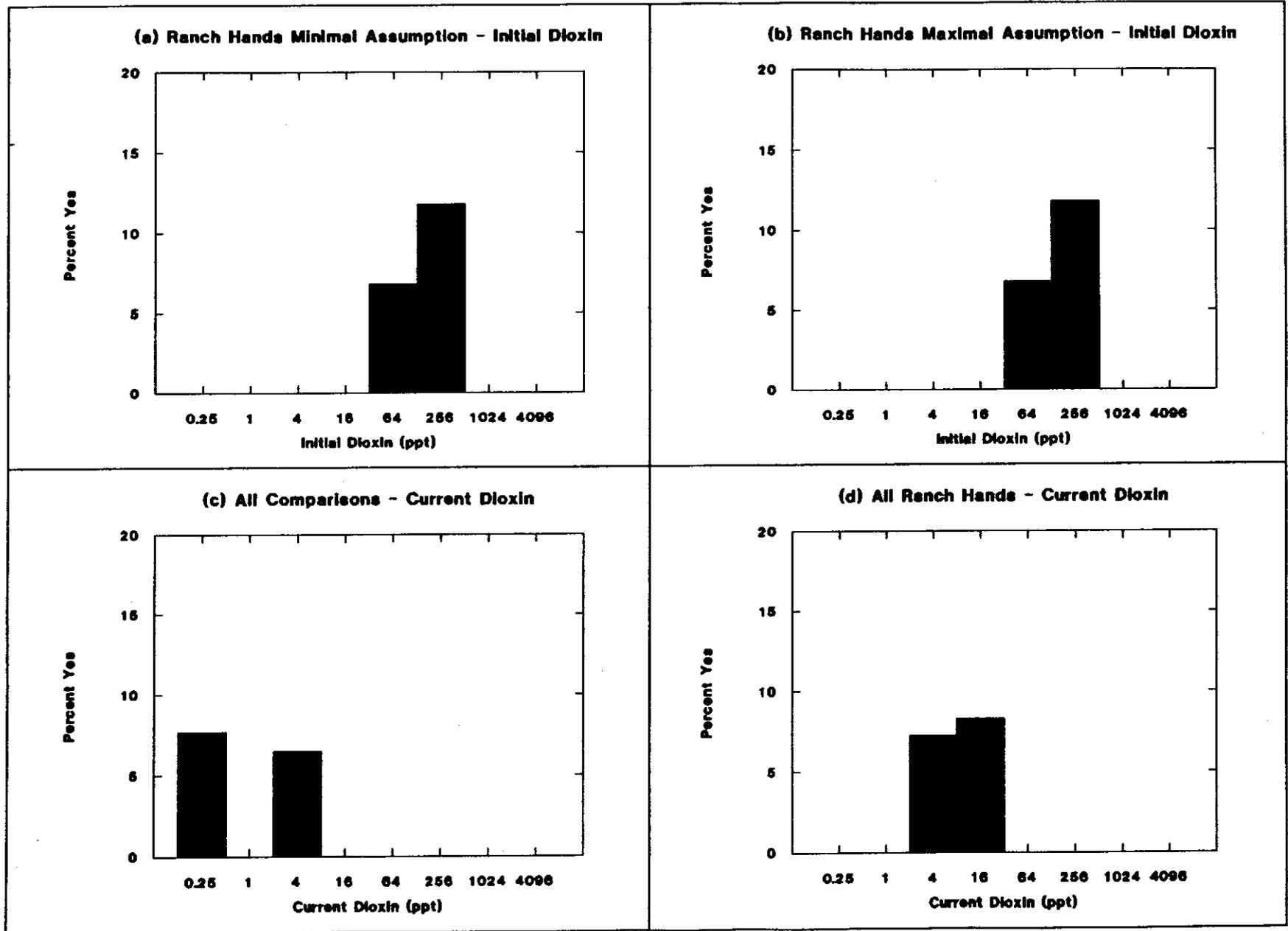


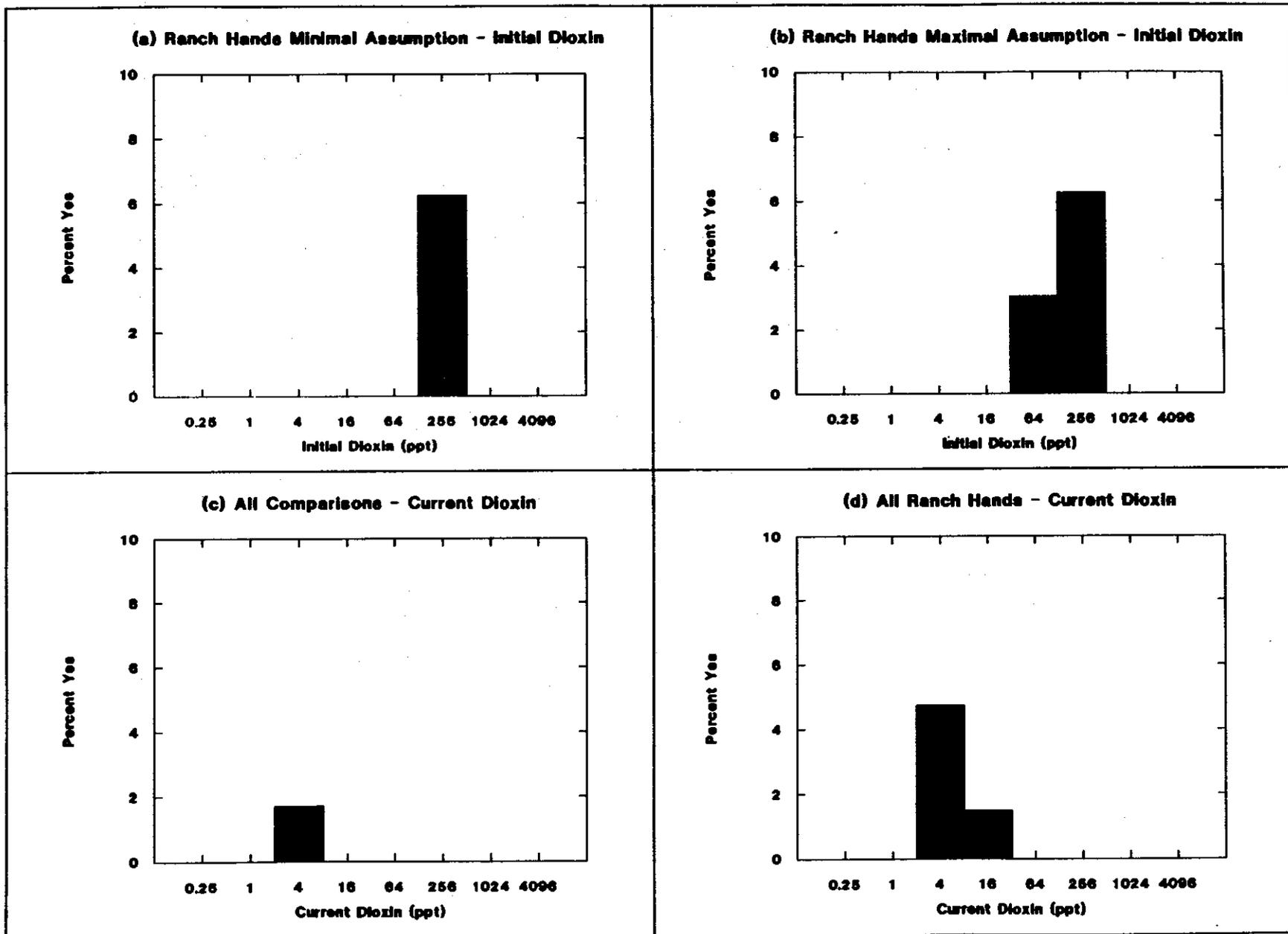
FIGURE F-1-17. Melanoma (Trunk) versus Dioxin



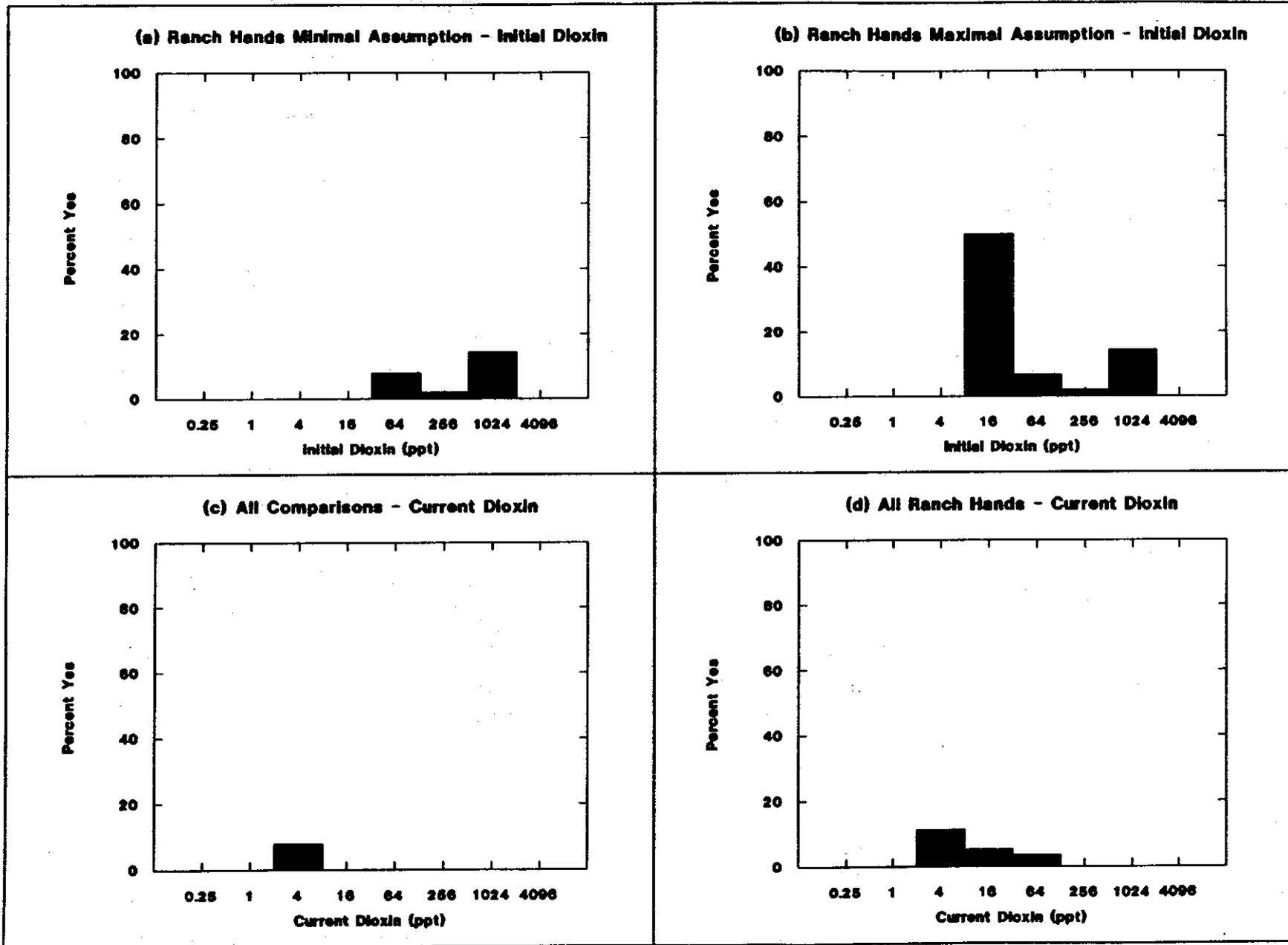
**FIGURE F-1-18. Squamous Cell Carcinoma (All Sites Combined) versus Dioxin**



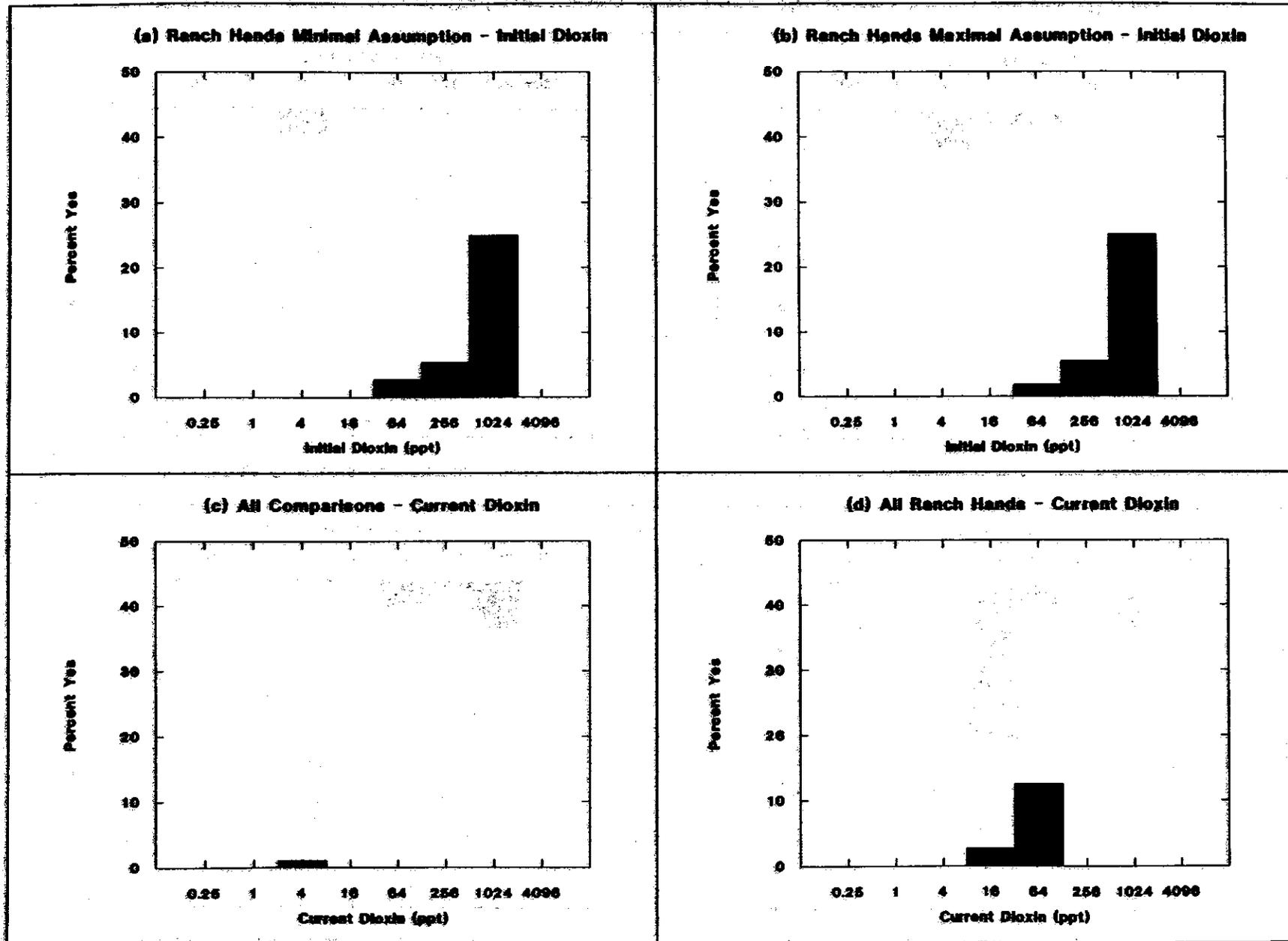
**FIGURE F-1-19. Basal Cell Carcinoma (Ear, Face, Head, and Neck) versus Dioxin, Officers Only**



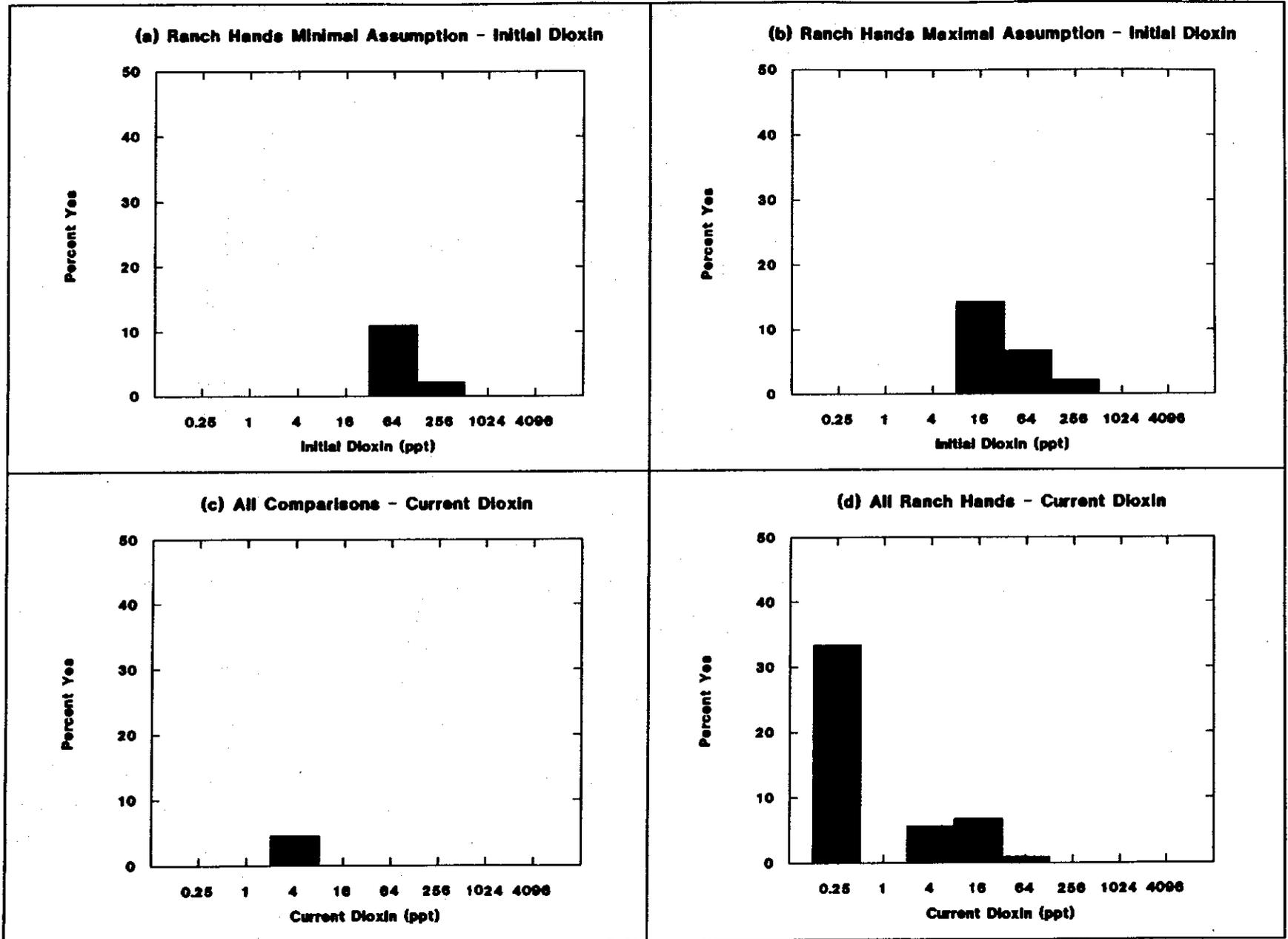
**FIGURE F-1-20. Basal Cell Carcinoma (Other Sites) versus Dioxin, Officers Only**



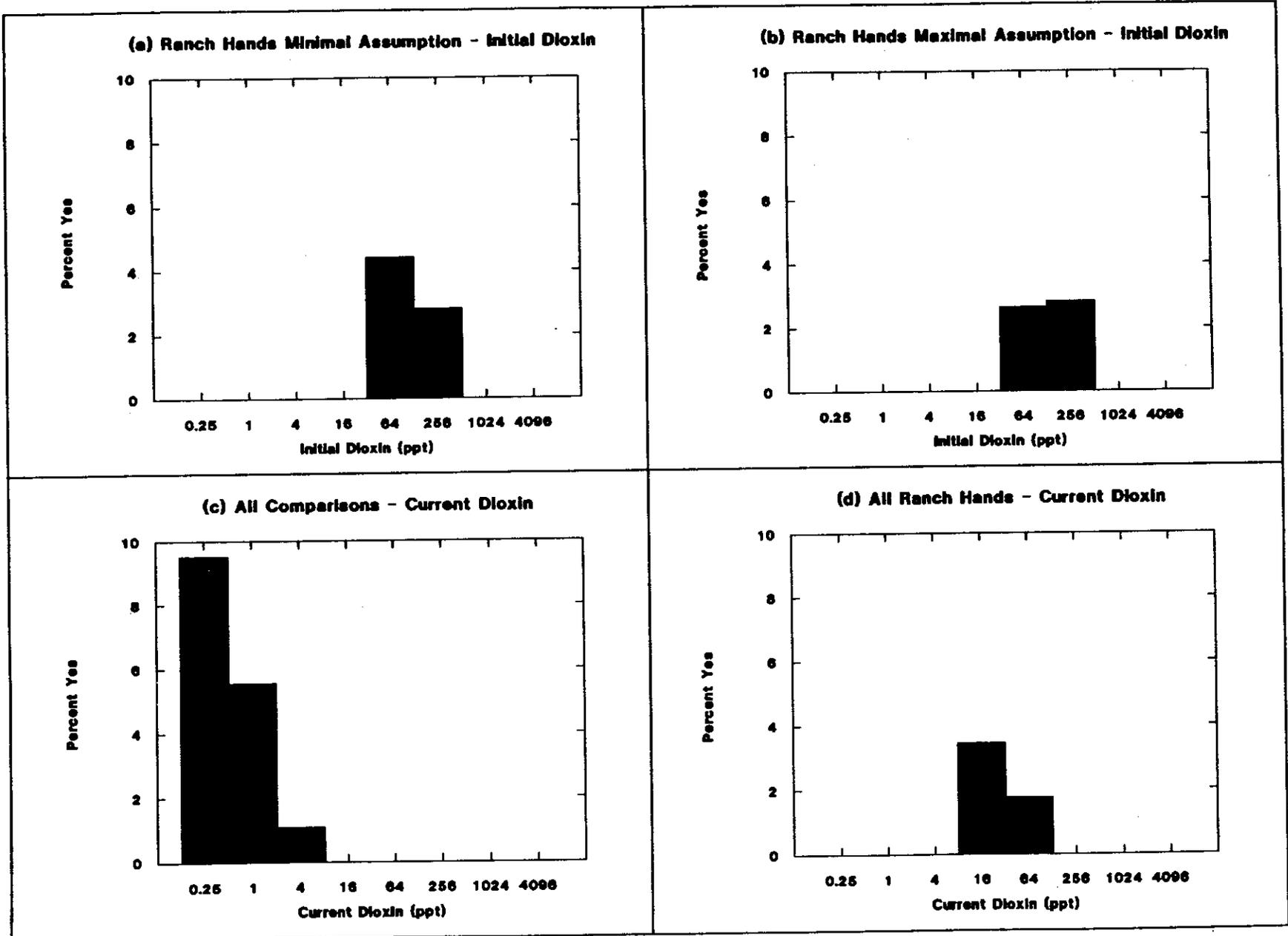
**FIGURE F-1-21. Basal Cell Carcinoma (Ear, Face, Head, and Neck) versus Dioxin, Enlisted Flyers Only**



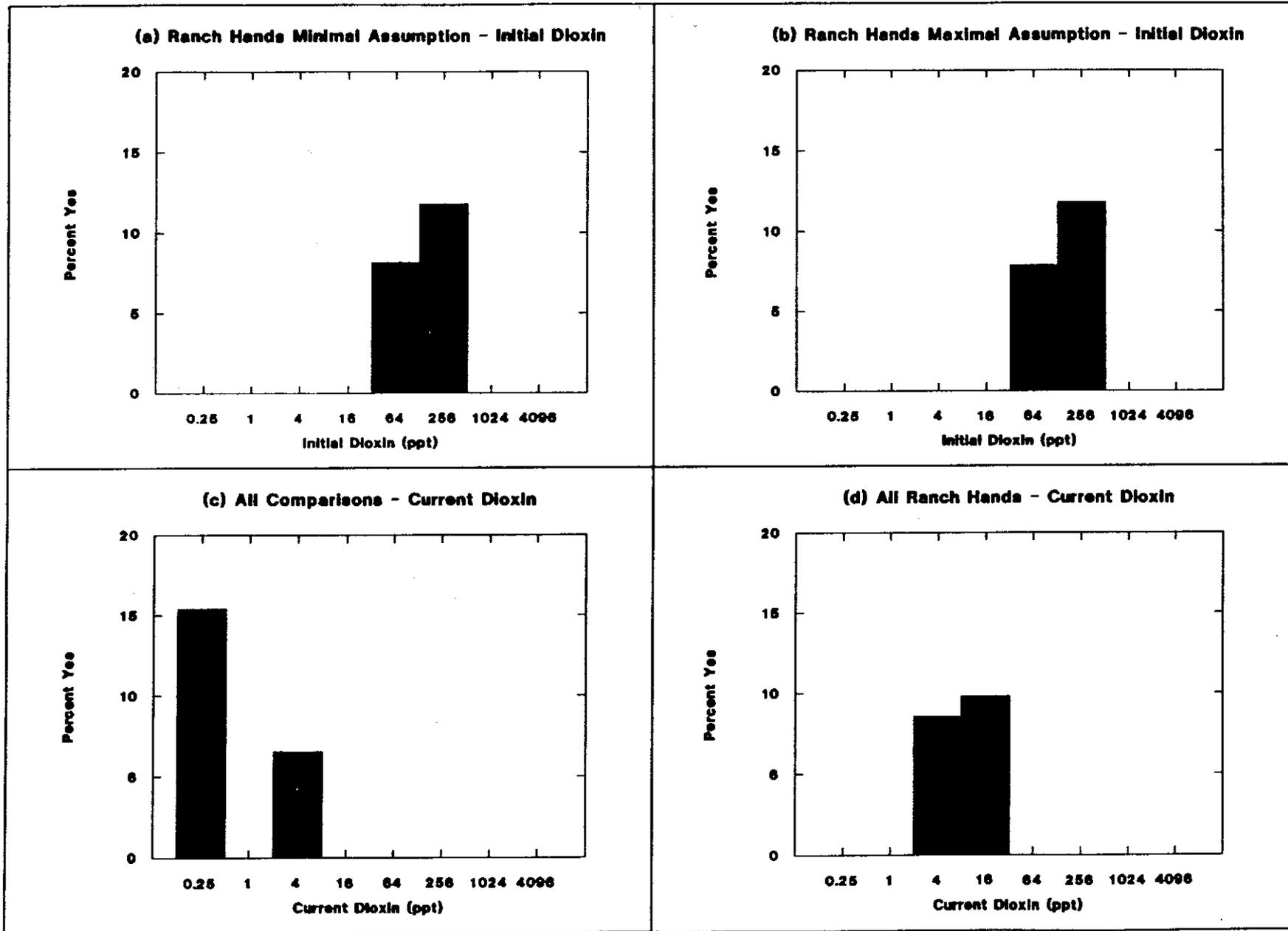
**FIGURE F-1-22. Basal Cell Carcinoma (Other Sites) versus Dioxin, Enlisted Flyers Only**



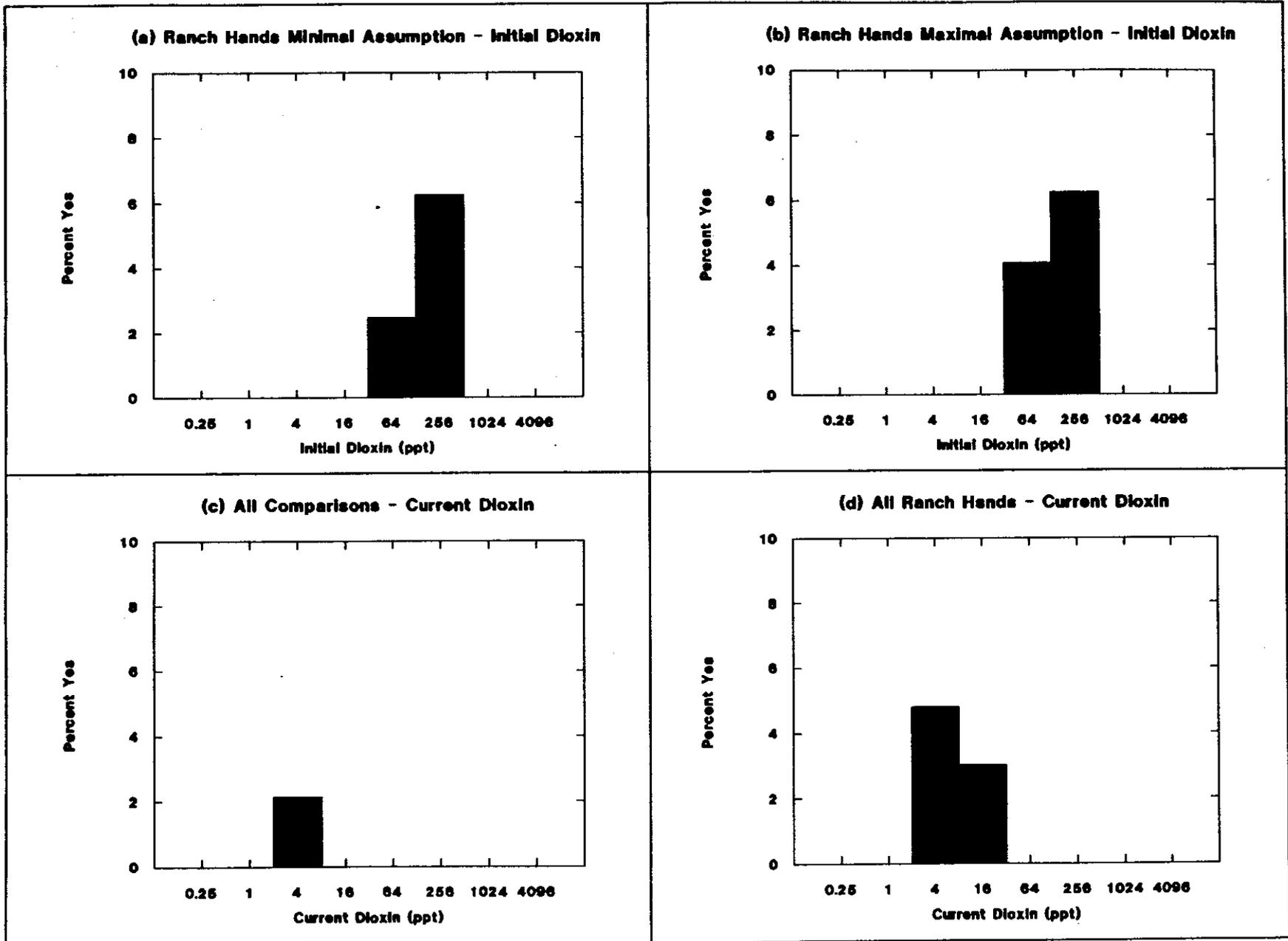
**FIGURE F-1-23. Basal Cell Carcinoma (Ear, Face, Head, and Neck) versus Dioxin, Enlisted Groundcrew Only**



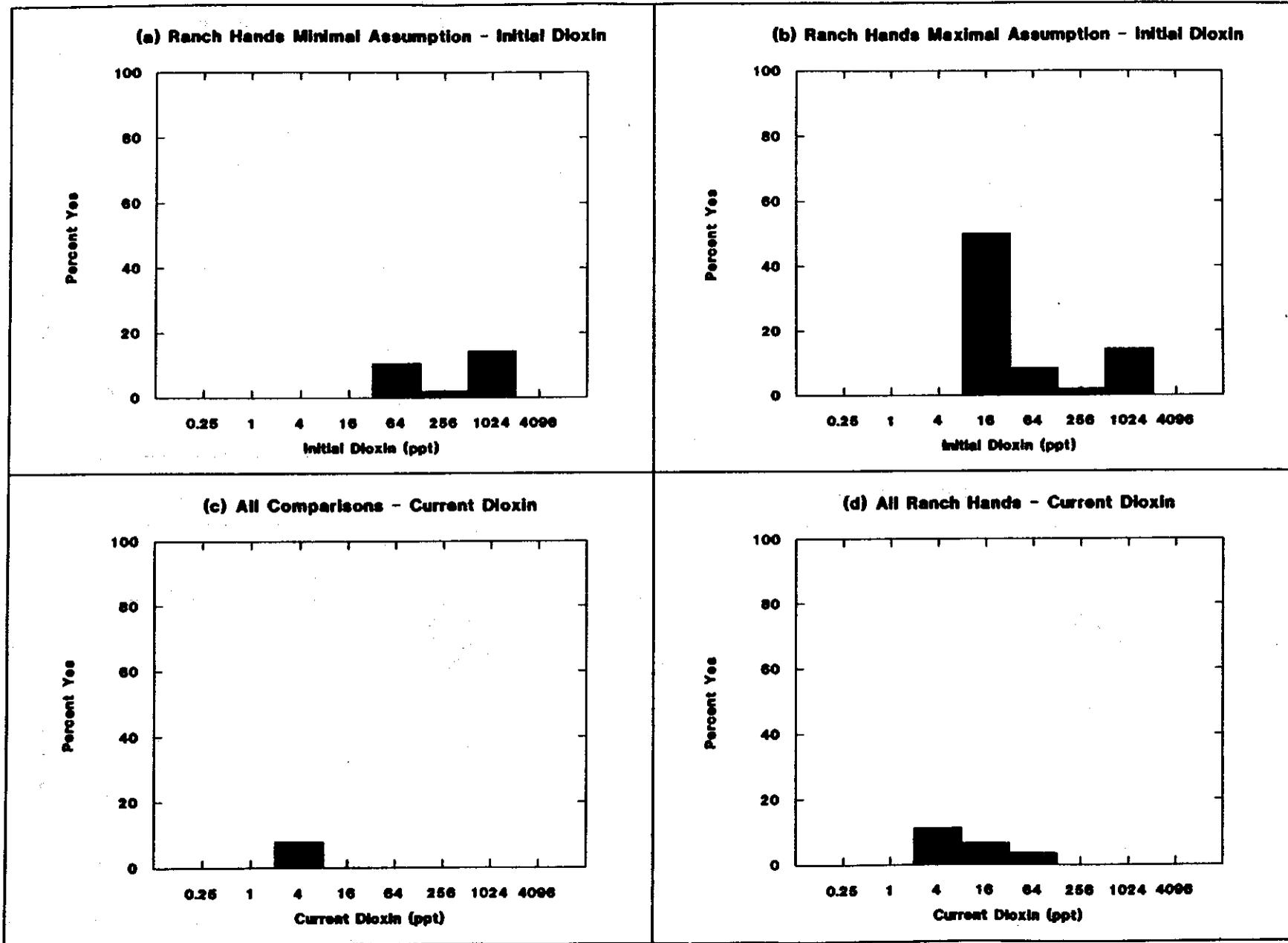
**FIGURE F-1-24. Basal Cell Carcinoma (Other Sites) versus Dioxin, Enlisted Groundcrew Only**



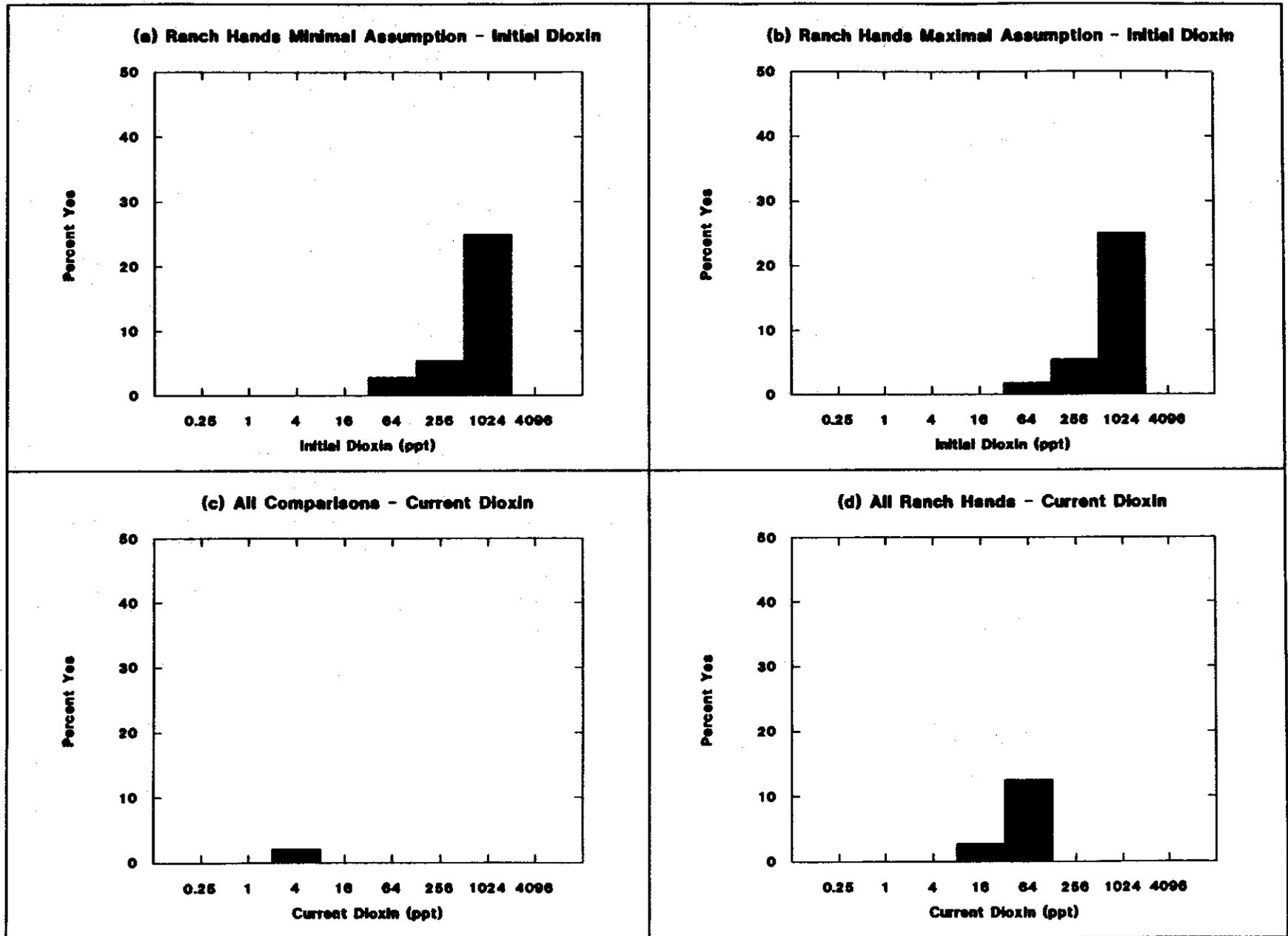
**FIGURE F-1-25. Sun Exposure-Related Malignant Skin Neoplasms (Ear, Face, Head, and Neck) versus Dioxin, Officers Only**



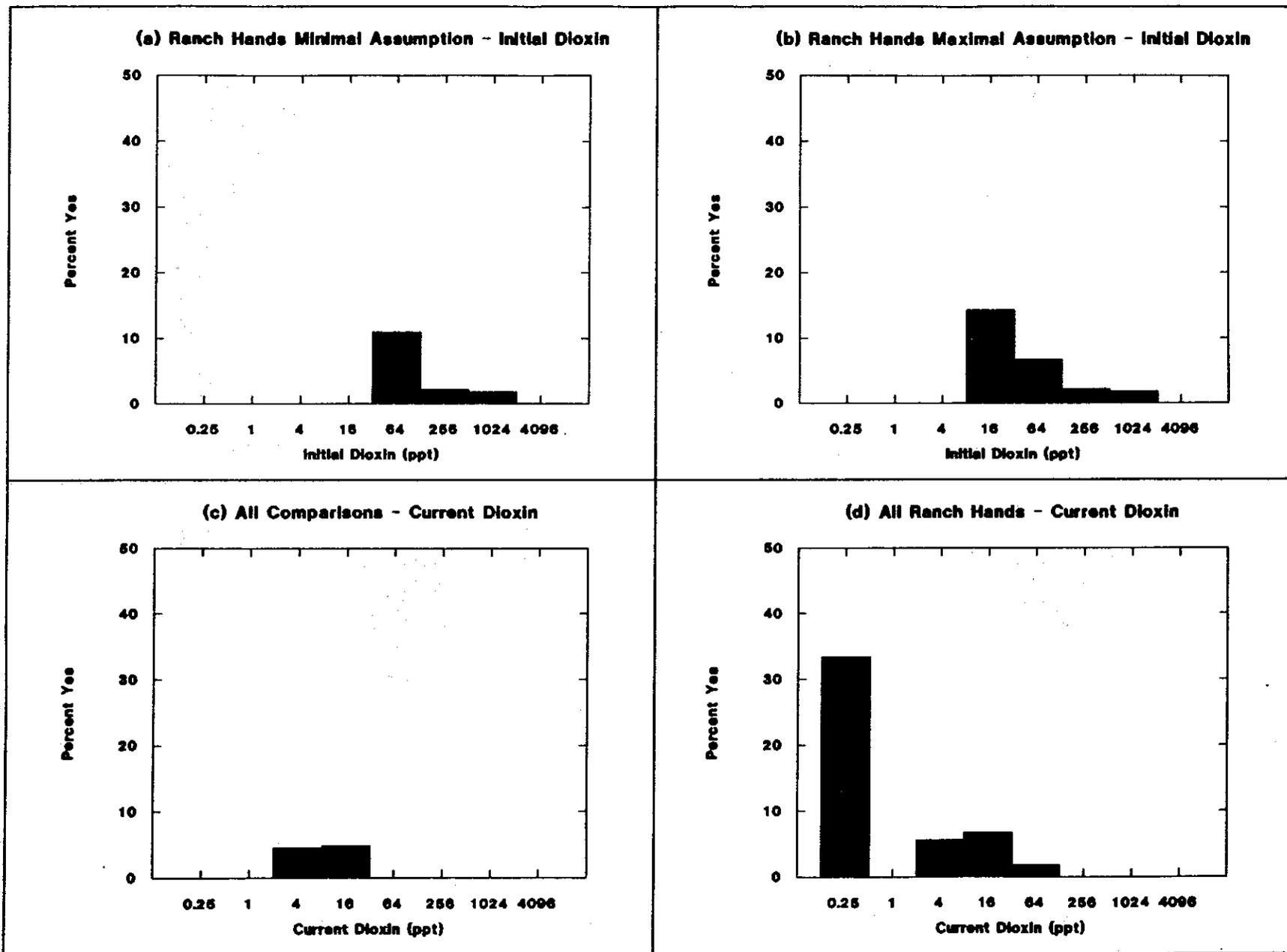
**FIGURE F-1-26. Sun Exposure-Related Malignant Skin Neoplasms (Other Sites) versus Dioxin, Officers Only**



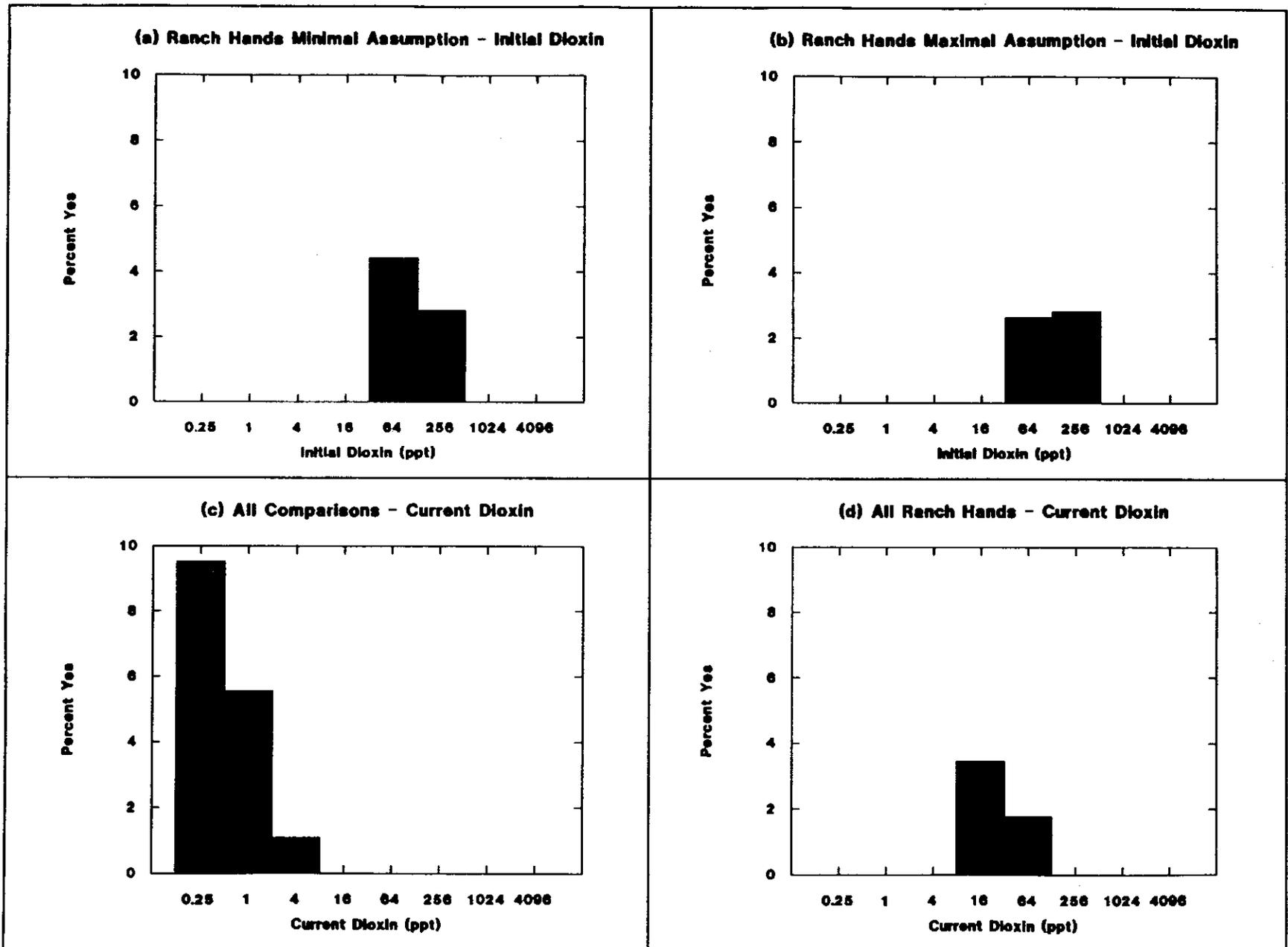
**FIGURE F-1-27. Sun Exposure-Related Malignant Skin Neoplasms (Ear, Face, Head, and Neck) versus Dioxin, Enlisted Flyers Only**



**FIGURE F-1-28. Sun Exposure-Related Malignant Skin Neoplasms (Other Sites) versus Dioxin, Enlisted Flyers Only**



**FIGURE F-1-29. Sun Exposure-Related Malignant Skin Neoplasms (Ear, Face, Head, and Neck) versus Dioxin, Enlisted Groundcrew Only**



**FIGURE F-1-30. Sun Exposure-Related Malignant Skin Neoplasms (Other Sites) versus Dioxin, Enlisted Groundcrew Only**

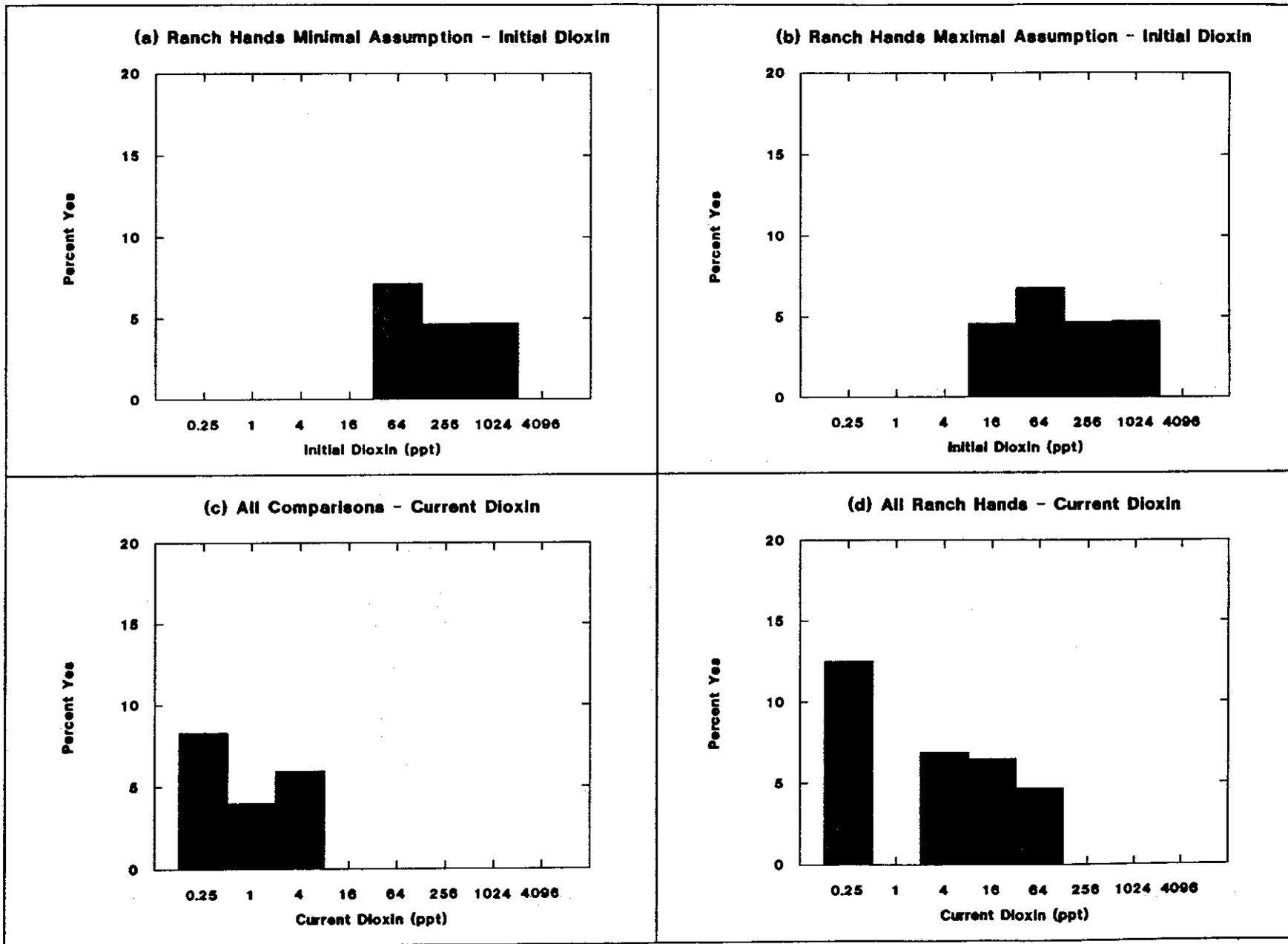
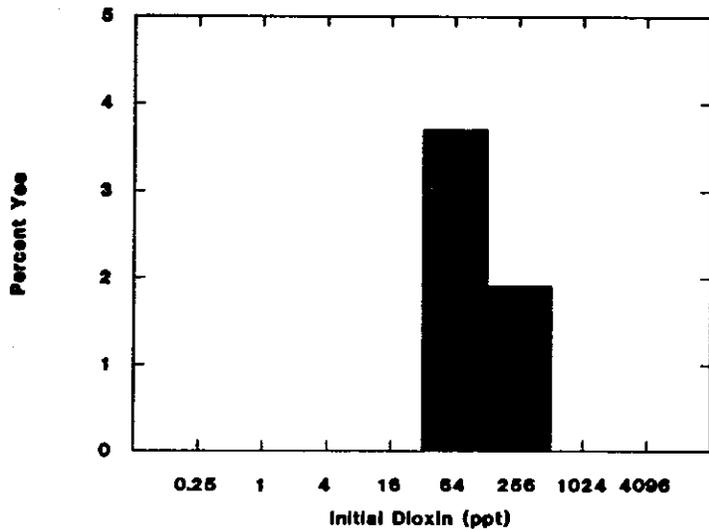
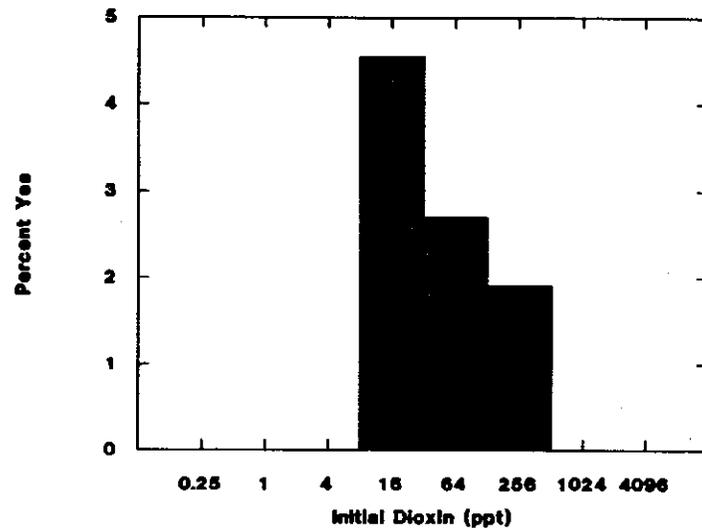


FIGURE F-1-31. Basal Cell Carcinoma (One) versus Dioxin

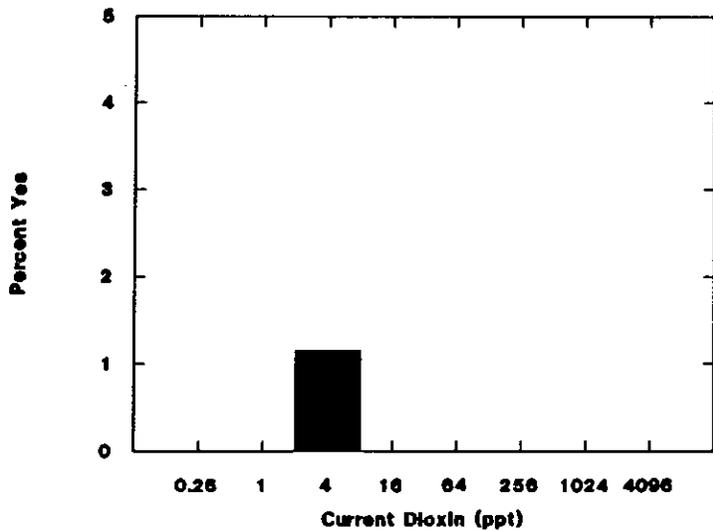
(a) Ranch Hands Minimal Assumption - Initial Dioxin



(b) Ranch Hands Maximal Assumption - Initial Dioxin



(c) All Comparisons - Current Dioxin



(d) All Ranch Hands - Current Dioxin

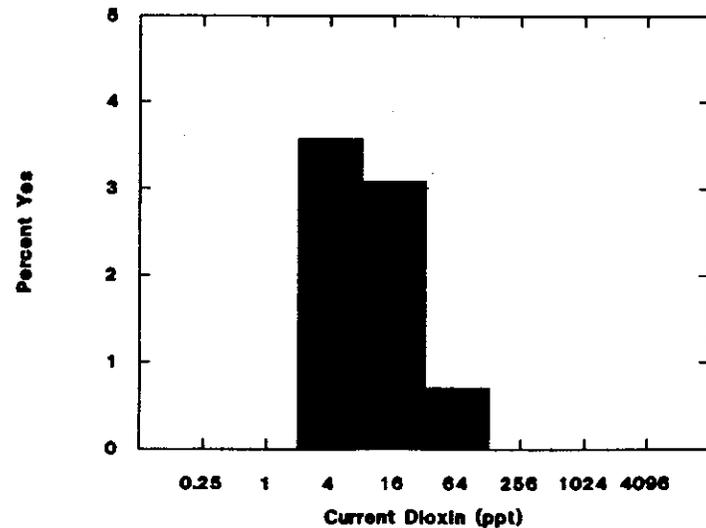


FIGURE F-1-32. Basal Cell Carcinoma (Multiple) versus Dioxin

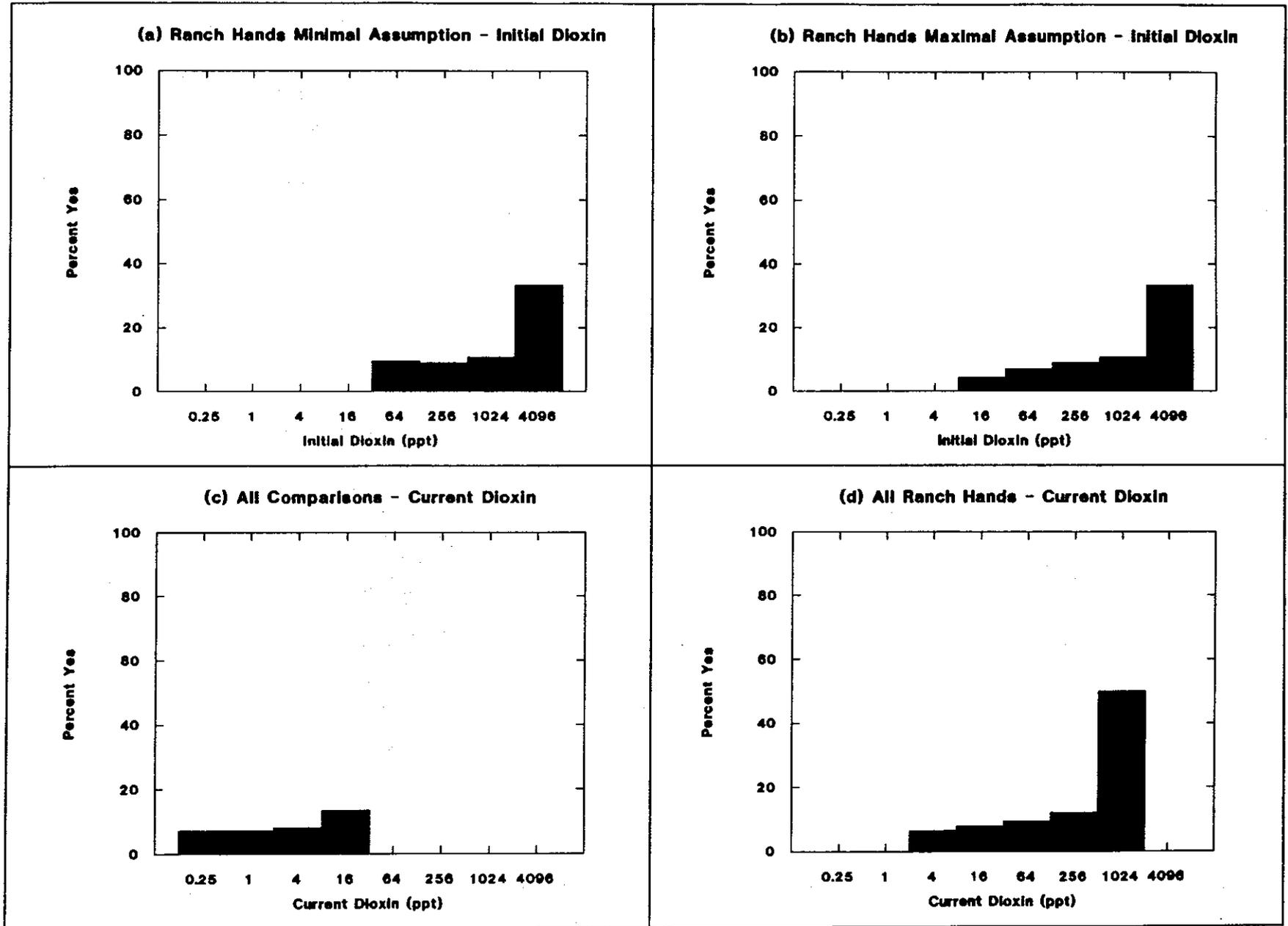
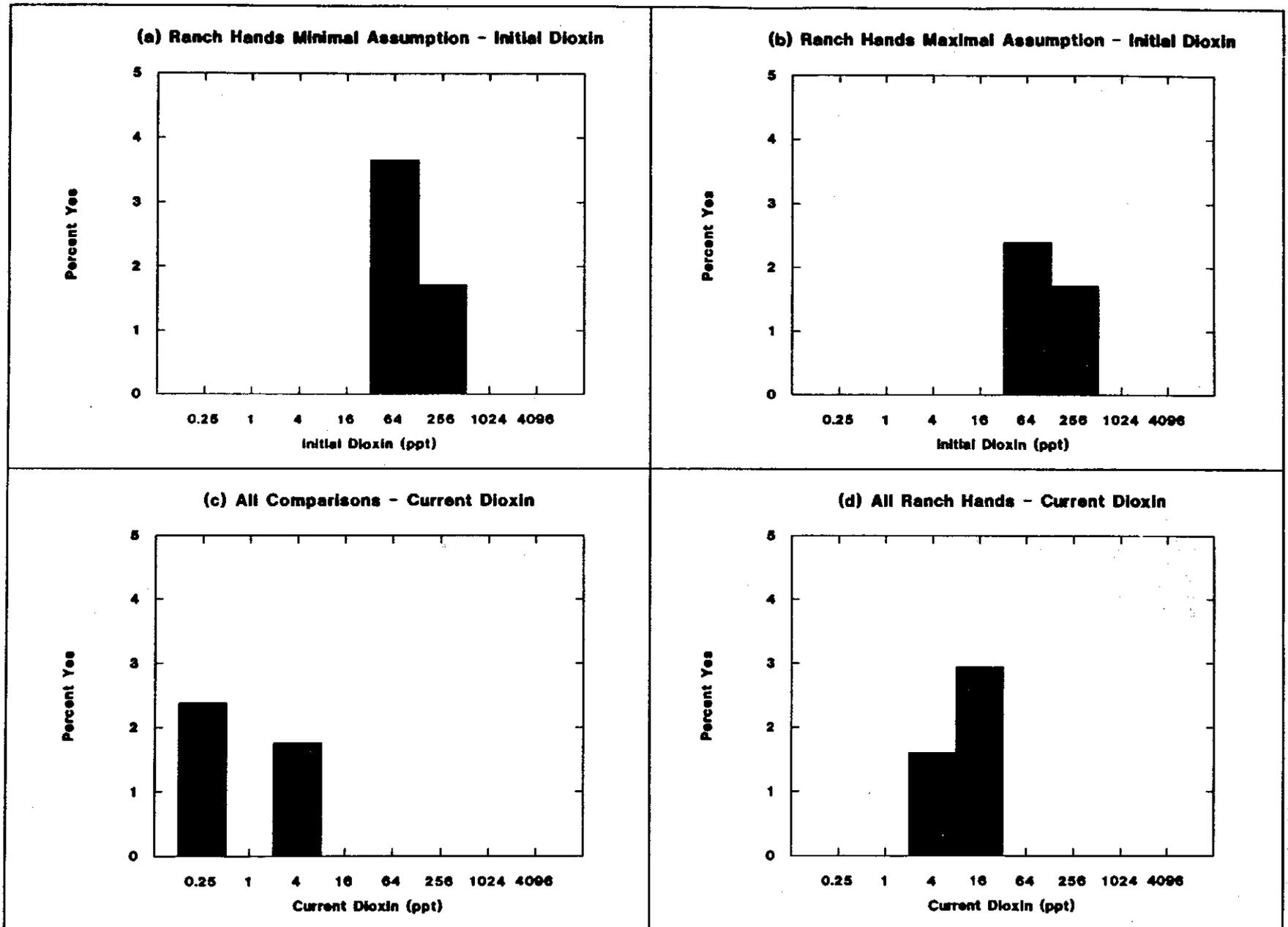
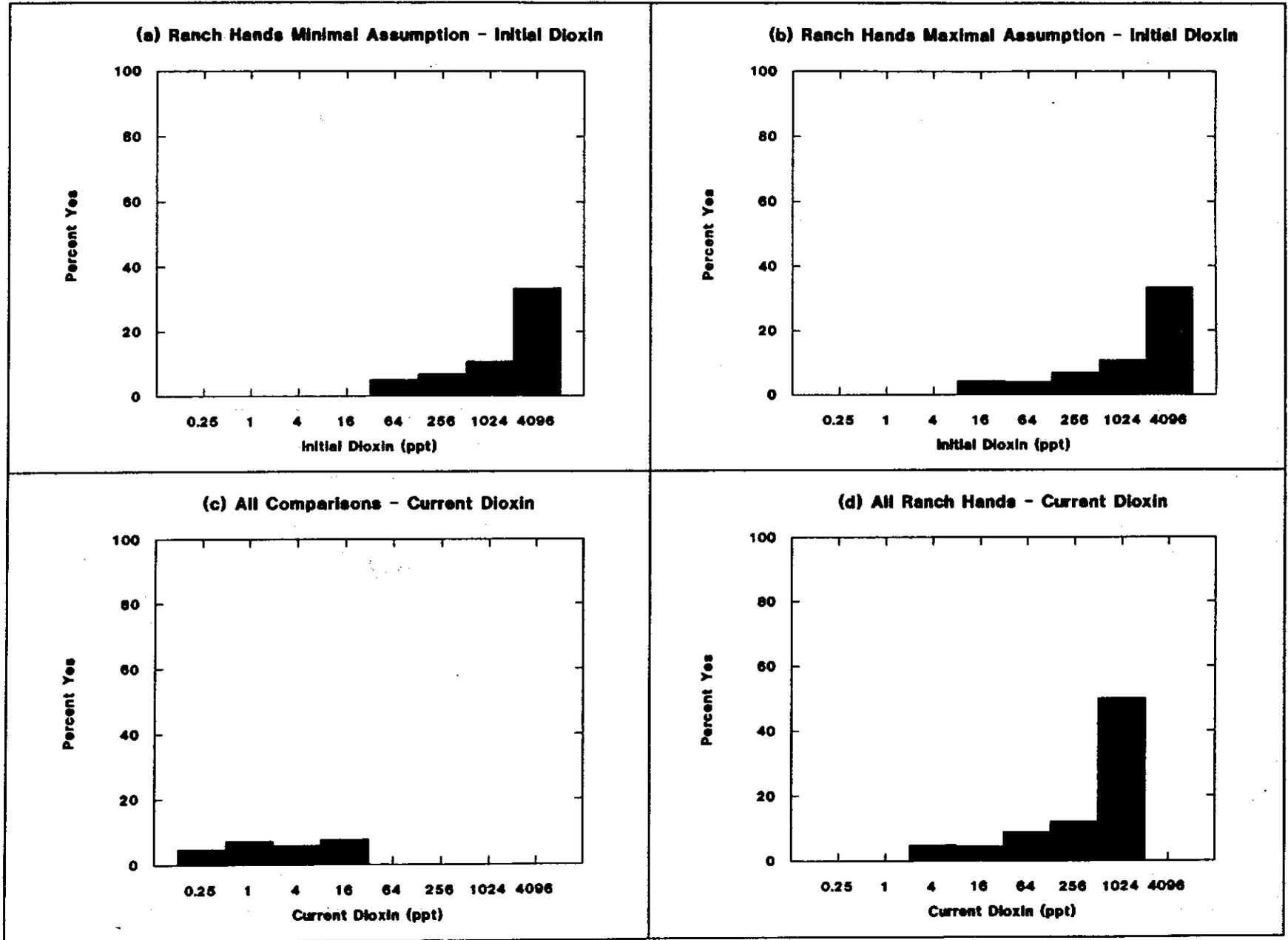


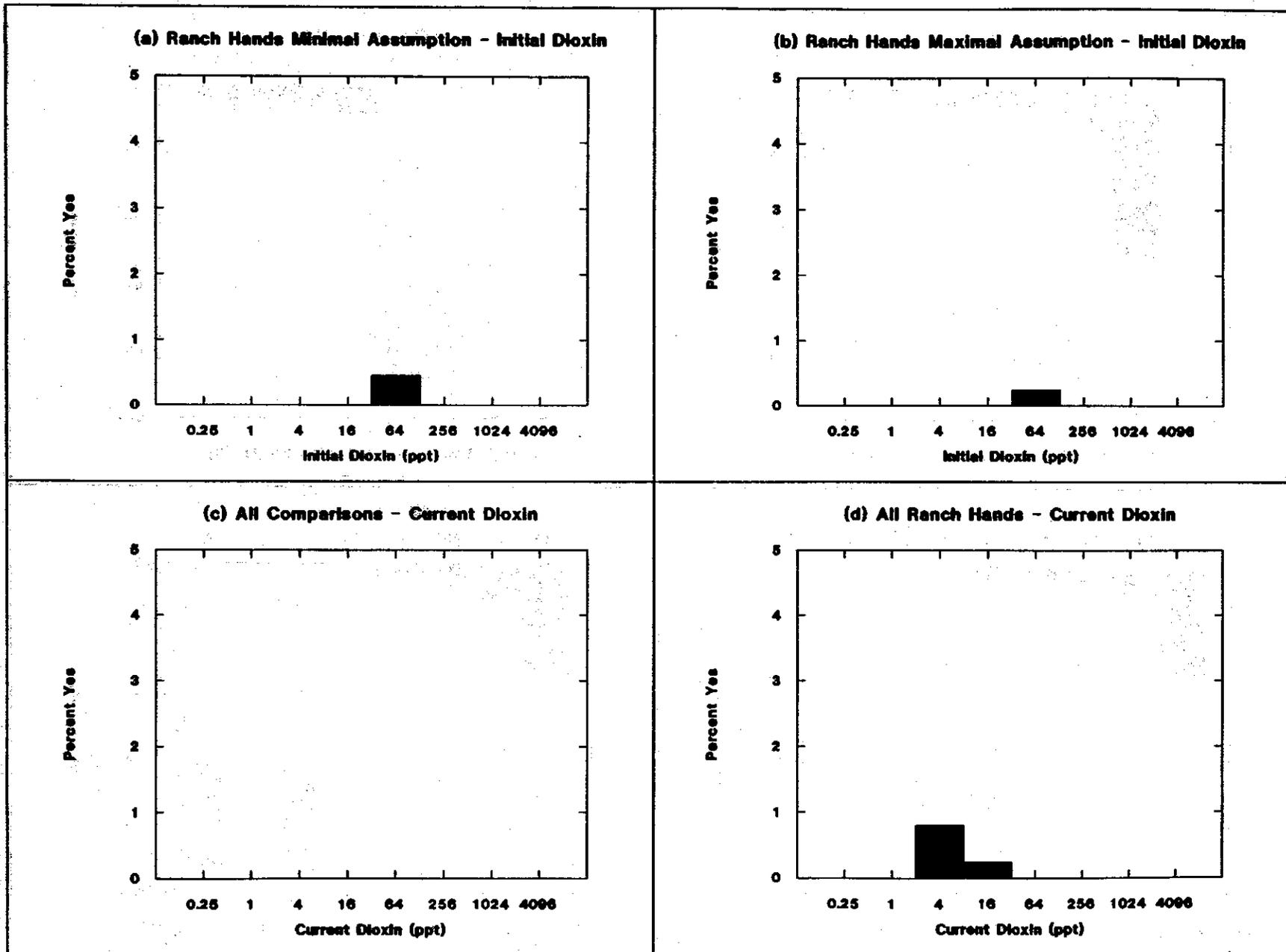
FIGURE F-1-33. All Systemic Neoplasms versus Dioxin



**FIGURE F-1-34. Malignant Systemic Neoplasms versus Dioxin**

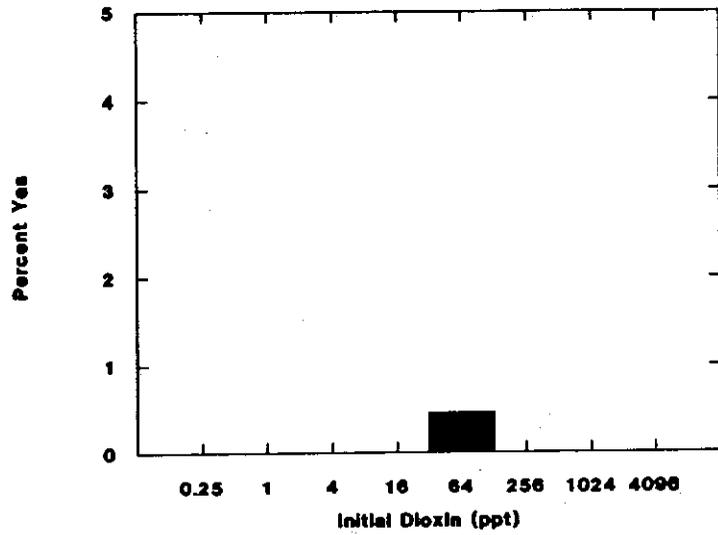


**FIGURE F-1-35. Benign Systemic Neoplasms versus Dioxin**

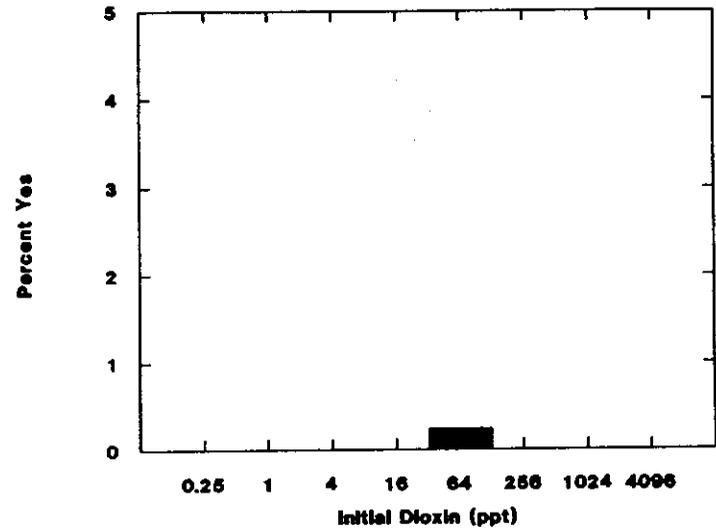


**FIGURE F-1-36. Malignant Systemic Cancer of the Bronchus and Lungs versus Dioxin**

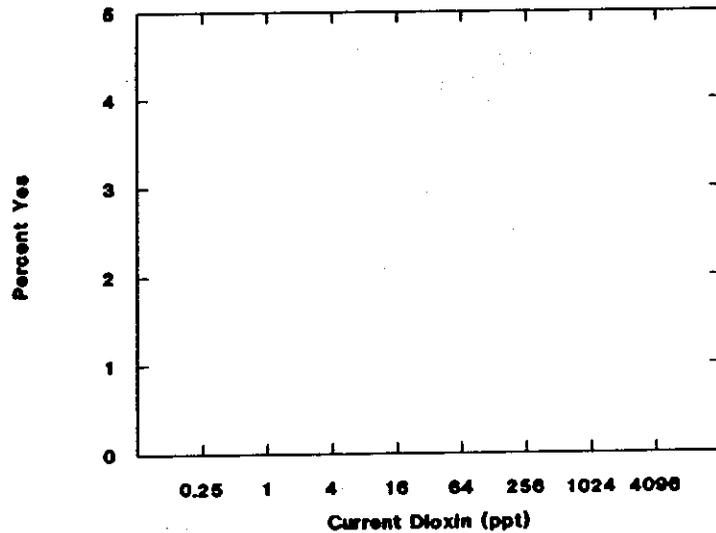
(a) Ranch Hands Minimal Assumption - Initial Dioxin



(b) Ranch Hands Maximal Assumption - Initial Dioxin



(c) All Comparisons - Current Dioxin



(d) All Ranch Hands - Current Dioxin

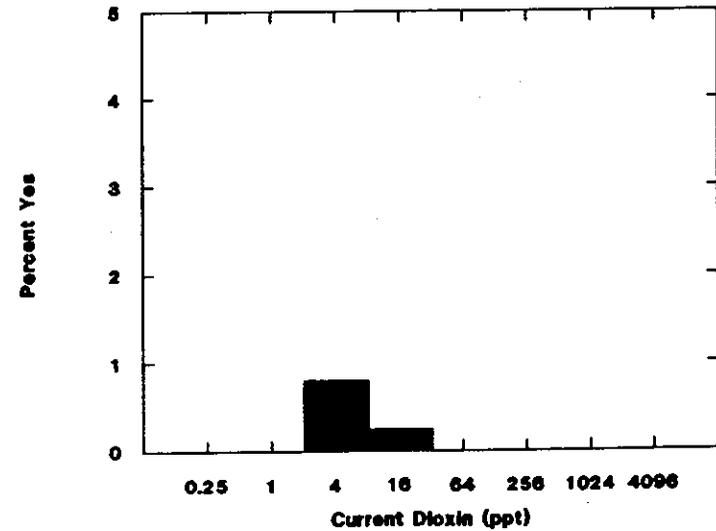


FIGURE F-1-37. Cancer of the Bronchus and Lungs versus Dioxin

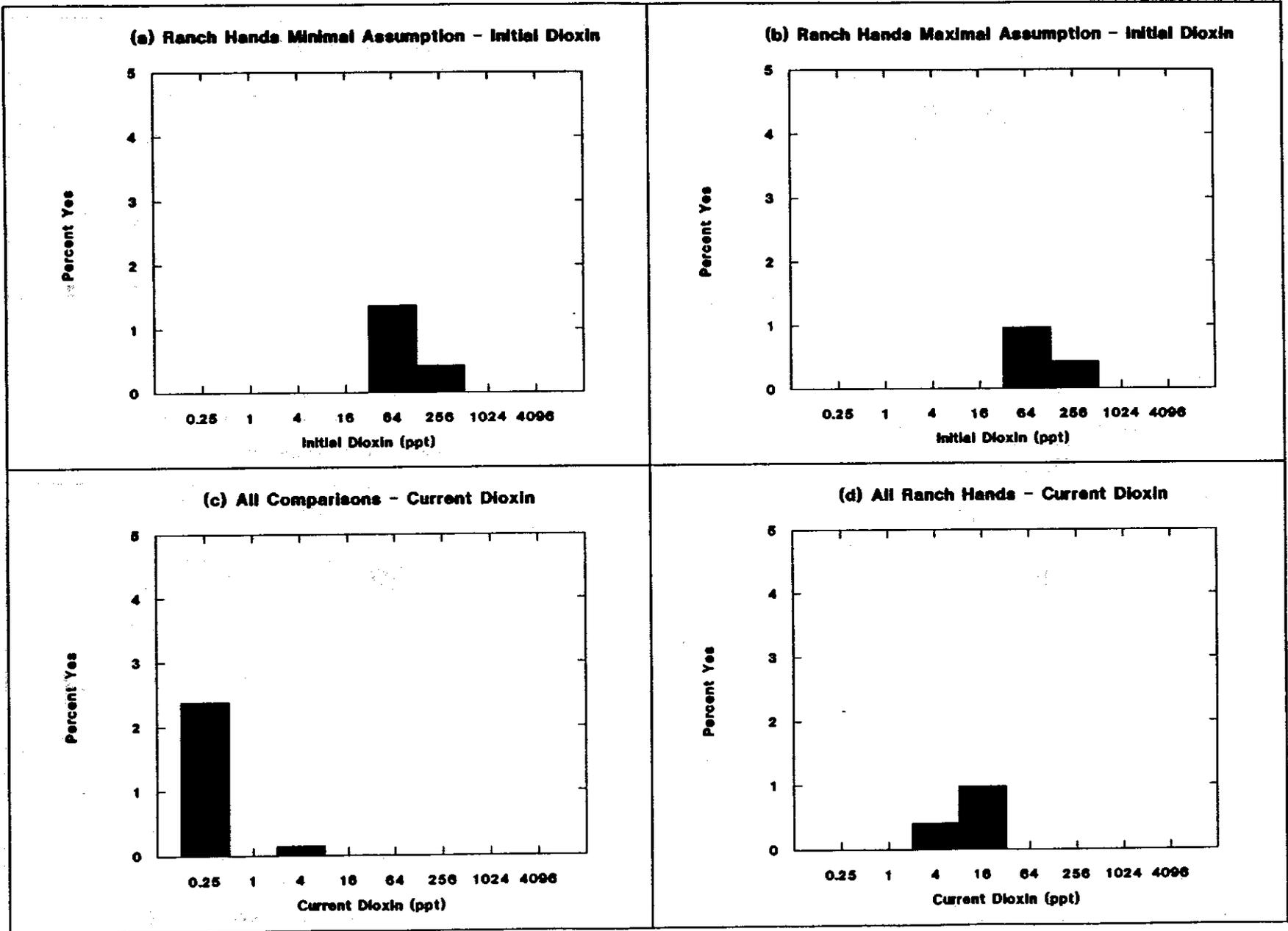


FIGURE F-1-38. Cancer of the Kidney and Bladder versus Dioxin

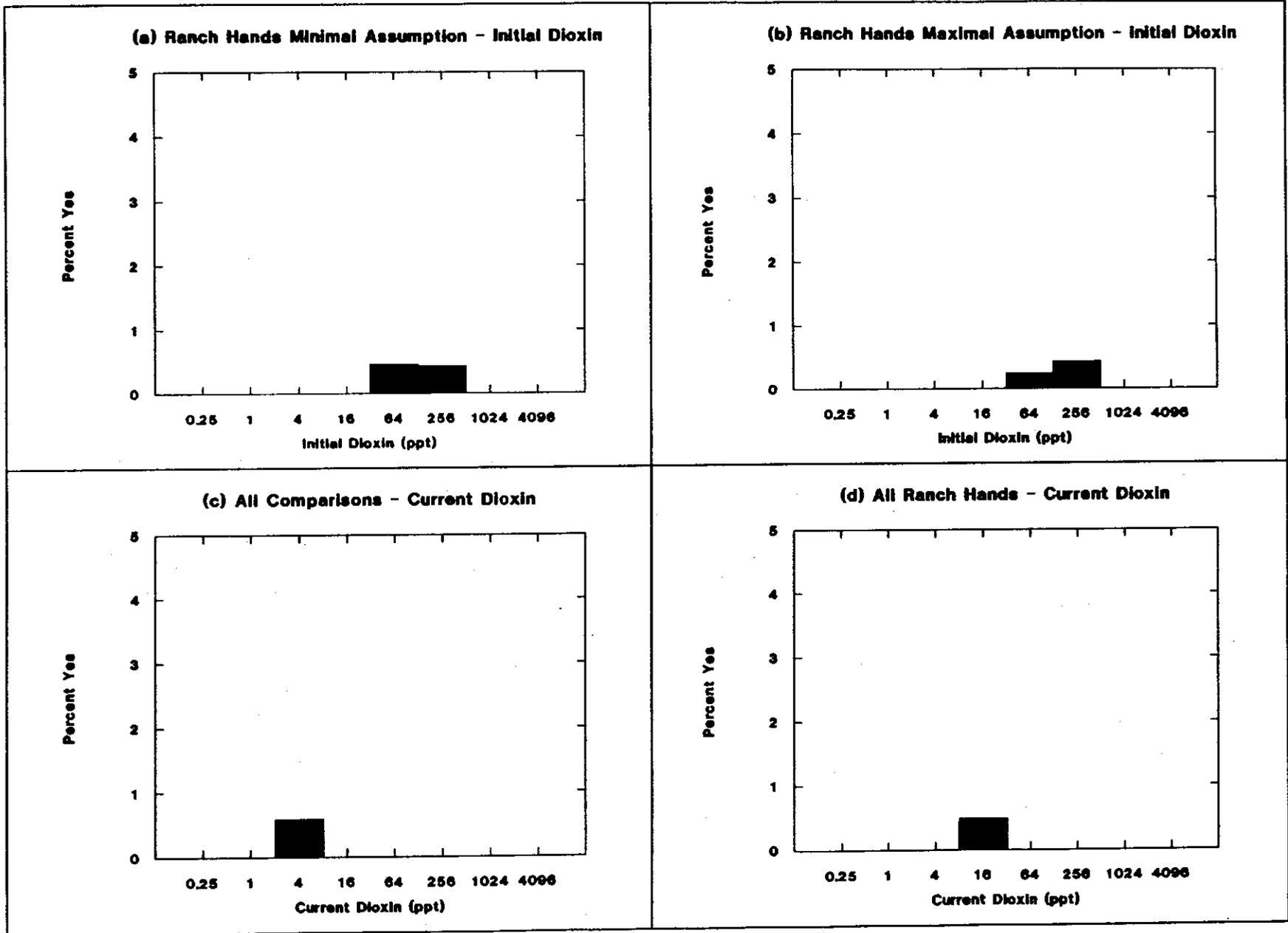


FIGURE F-1-39. Prostate Cancer versus Dioxin

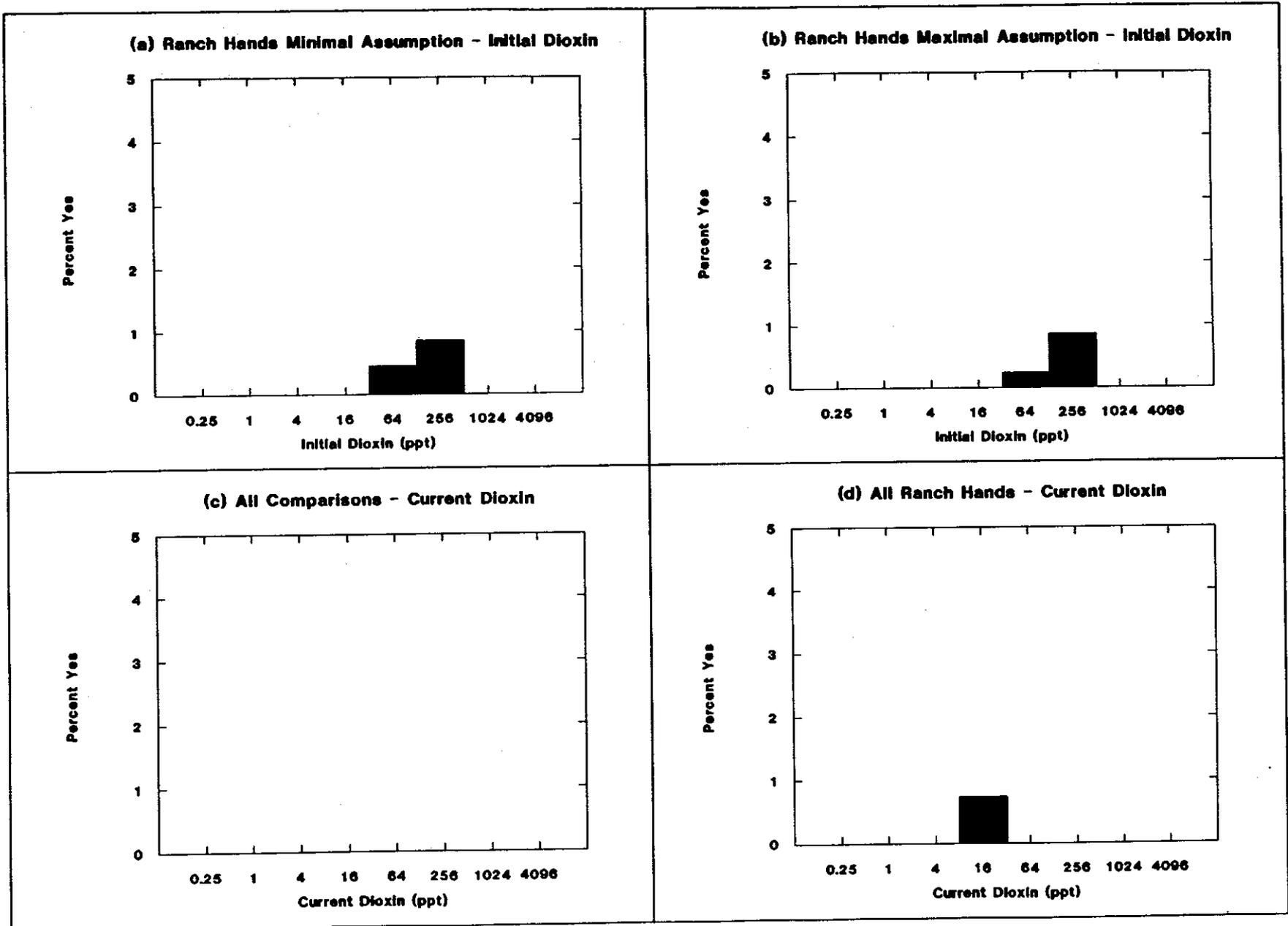
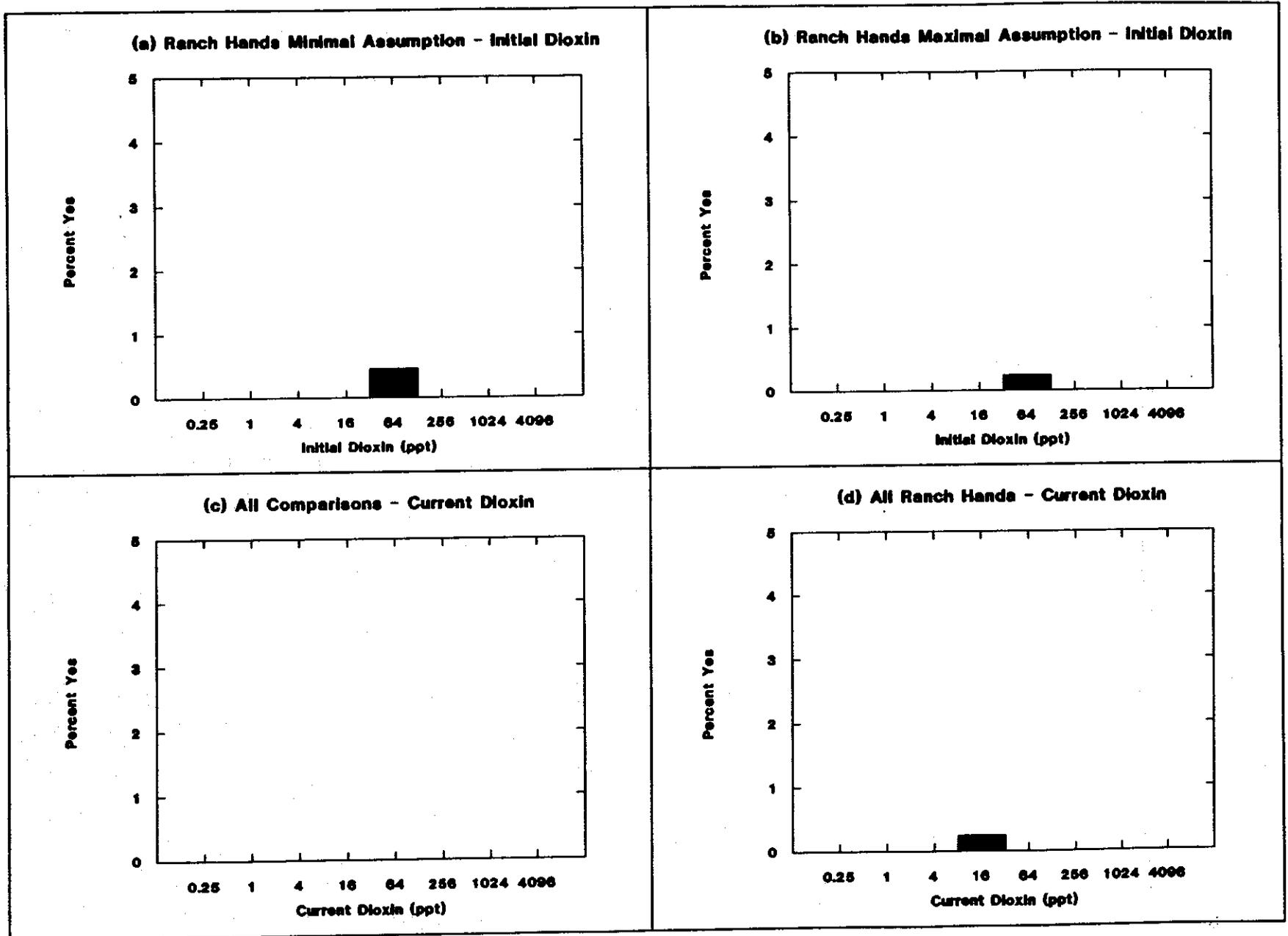


FIGURE F-1-40. Cancer of the Testicles versus Dioxin



**FIGURE F-1-41. Carcinoma in Situ for Other and Unspecified Sites versus Dioxin**

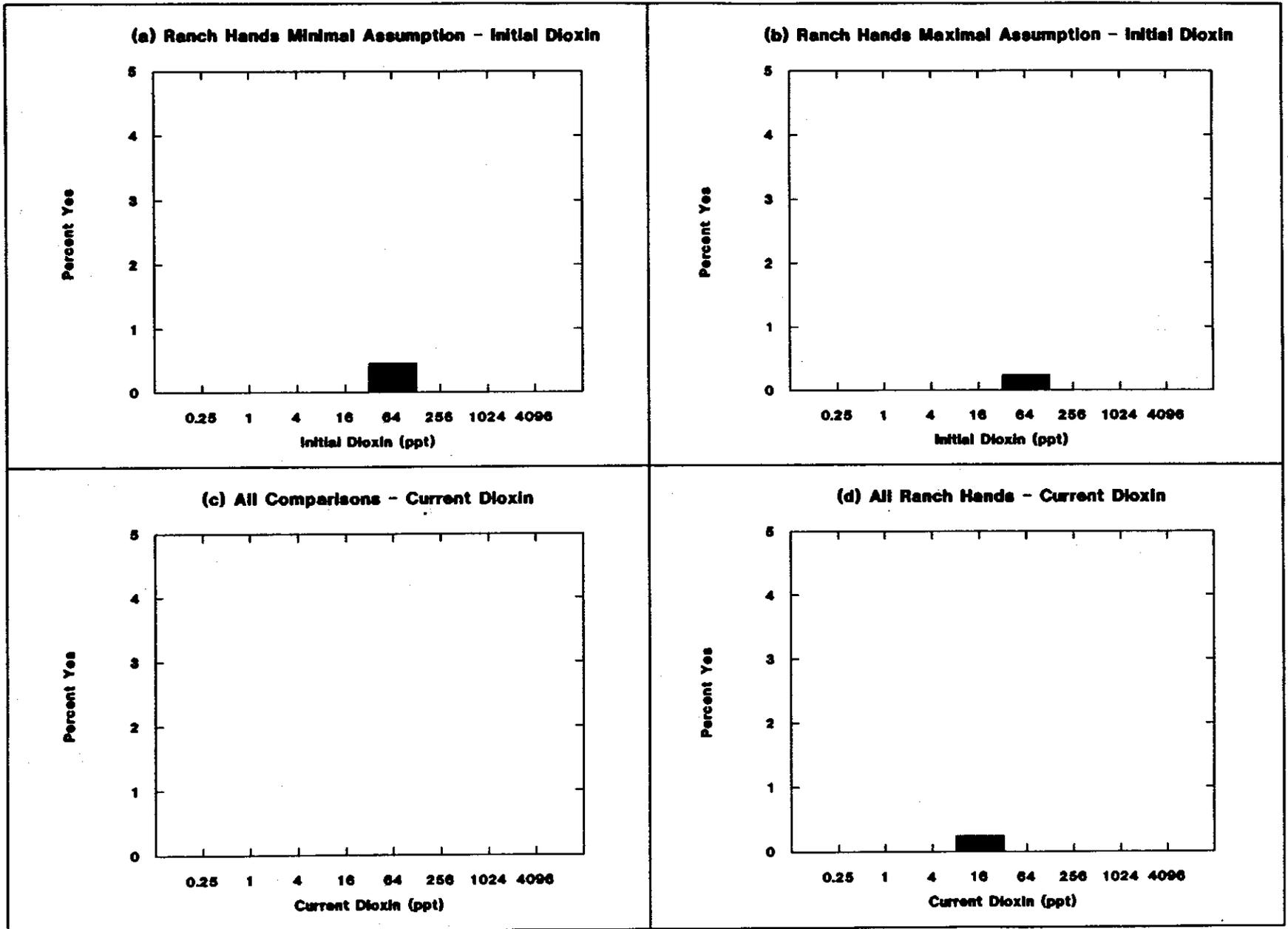


FIGURE F-1-42. Leukemia versus Dioxin