

CHAPTER 5

RESULTS: FACTORS AFFECTING OCCURRENCE OF DERMATITIS AMONG PADDY FIELD FARMERS

5.1 Socio-demographics of the Paddy Field Farmers

Table 5.1.1 and Figure 5.1.1 show the distribution pattern of the occurrence of dermatitis among the paddy field farmers according to the villages. From the table it can be seen that the highest occurrence of dermatitis is in Kampung Serdang Surau (Tua) with a prevalence of 66.7 per cent followed by Kampung Alor Bakat (58 per cent), Kampung Serdang Muda (48.4 per cent) and the least is in Kampung Tok Junuh (39 per cent). But in terms of numbers of infected cases Kampung Alor Bakat has the highest numbers of infected cases (73 cases) followed by Kampung Serdang Surau, then Kampung Serdang Muda and the least number of infected cases is in Kampung Tok Junuh. Pearson Chi-Square test of association shows significant association between the occurrence of dermatitis among paddy farmers and the village they stay in ($\chi^2 = 16.402$, $df = 3$, $p = 0.001$).

Table 5.1.1: The Occurrence of Dermatitis Among Paddy Field Farmers According to the Village.

Village Name	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)*
Alor Bakat	73	114	58.0
Tok Junuh	29	21	39.0
Serdang Surau (Tua)	40	20	66.7
Serdang Muda	30	32	48.4
Total	172	187	-

* Prevalence (%) = [Number of positive cases/Total population] x 100

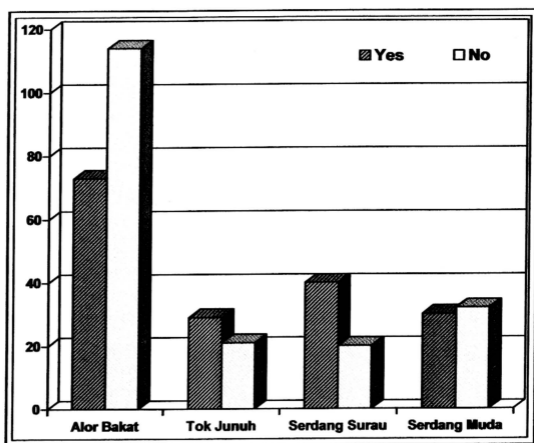


Figure 5.1.1: The Occurrence of Dermatitis Among Paddy Field Farmers according to the Village.

Table 5.1.2 and Figure 5.1.2 show the distribution pattern of the occurrence of dermatitis among the paddy field farmers according to sex. Although it was found that the occurrence of dermatitis is higher in females (49.0 per cent) than males (47.1 per cent), there was no significant association found between the occurrence of dermatitis and the sex of the population ($\chi^2 = 0.125$, $df = 1$, $p = 0.723$).

Table 5.1.2: The Occurrence of Dermatitis Among Paddy Field Farmers According to the Sex.

Sex	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Male	98	110	47.1
Female	74	77	49.0
Total	172	187	-

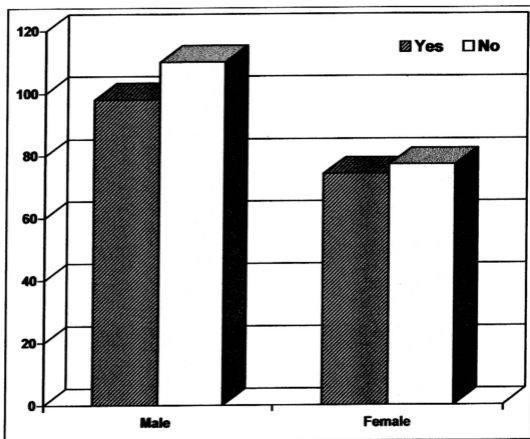


Figure 5.1.2: The Occurrence of Dermatitis Among Paddy Field Farmers according to Sex.

As for Table 5.1.3 and Figure 5.1.3 it shows the distribution patterns of the occurrence of dermatitis among the paddy field farmers according to the age groups of the population. The highest occurrence of dermatitis is in the age groups of 70 years old and above (57.7 per cent) followed by the age groups of 50 – 60 years old (52.5 per cent) and the least occurrence of dermatitis was among the age groups of 20 – 30 years old (33.3 per cent). In terms of number of infected cases it was found that the highest number of infected cases were in the age groups of 50 – 60 years old followed by the 40 – 50 years age groups and the least infected cases were found in the 20 – 30 years old age groups. However there is no significant association between the age groups and the occurrence of dermatitis ($\chi^2 = 5.101$, $df = 5$, $p = 0.404$).

Table 5.1.3: The Occurrence of Dermatitis Among Paddy Field Farmers According to Age Groups.

Age Groups (years old)	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
20 to less than 30	6	12	33.3
30 to less than 40	22	30	42.3
40 to less than 50	44	46	48.9
50 to less than 60	63	57	52.5
60 to less than 70	22	31	41.5
More than 70	15	11	57.7
Total	172	187	-

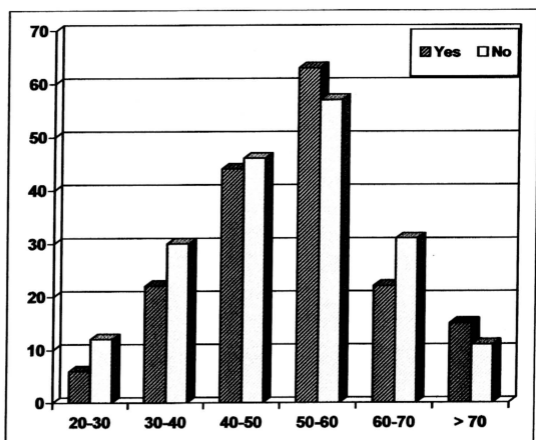


Figure 5.1.3: The Occurrence of Dermatitis Among Paddy Field Farmers according to Age Groups.

5.2 Occurrence of Dermatitis at Various Stages of the Planting Process

5.2.1 Preparation of Fields

For the preparation of fields, the planting methods used by paddy field farmers can be classified either as manual or mechanical where manual means that the farmer ploughs and hoes (“cangkul”) or uses ploughs driven by buffaloes. As for the mechanical method a machine operated plough is used which is the method most commonly used for preparation of the fields in the area under study in this research. During this stage of the planting process the fields are normally wet. Table 5.2.1 shows the method used by the paddy field farmers for preparing the fields with the occurrence of dermatitis. There is a significant association

between planting stage and the occurrence of dermatitis ($\chi^2 = 4.664$, $df = 1$, $p = 0.031$). However there is no significant association found between the occurrence of dermatitis and the method used during the field preparation used ($\chi^2 = 0.923$, $df = 3$, $p = 0.8290$).

Table 5.2.1: Methods used during the Preparation of Fields and the Occurrence of Dermatitis Among Paddy Field Farmers

Method Used	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Machine	22	25	46.8
Manual	16	20	44.4
Both	130	134	49.2
Unavailable	4	7	36.4
Total	172	187	-

5.2.2 Sowing of Seeds (“Menyemai”)

Table 5.2.2 shows the occurrence of dermatitis and the sowing of seeds stage. There is no significant association found between the occurrence of dermatitis and the sowing of seeds stage. ($\chi^2 = 3.721$, $df = 2$, $p = 0.156$).

Table 5.2.2: The Occurrence of Dermatitis Among Paddy Field Farmers with the Sowing of Seeds Stage (“Menyemai”)

Sowing Of Seeds	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	157	167	48.5
No	15	16	48.4
Unavailable	-	4	-
Total	172	187	-

5.2.3 Transplanting of Seedlings (“Mengubah”)

During the transplanting stage the fields are filled with water. The occurrence of dermatitis and the transplanting stage is shown in table 5.2.3 and from the Pearson Chi-Square, there is a significant association between the transplanting stage and the occurrence of dermatitis ($\chi^2 = 7.469$, $df = 2$, $p = 0.024$).

Table 5.2.3: The Occurrence of Dermatitis Among Paddy Field Farmers with the Transplanting Stage (“Mengubah”)

Transplanting Stage	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	148	140	51.4
No	23	43	34.8
Unavailable	1	4	20.0
Total	172	187	-

5.2.4 Application of Fertilizers (“Membaja”)

Table 5.2.4 show the stage of application of fertilizers and the occurrence of dermatitis. No significant association was found between the application of fertilizers and the occurrence of dermatitis ($\chi^2 = 2.747$, $df = 2$, $p = 0.253$).

Table 5.2.5 shows the types of fertilizers being used. It was found that 34.5 per cent of the farmers do not use fertilizer. The majority of the farmers (56.8 per cent) who do apply fertilizers use urea as a fertilizer, which is distributed by the government. Table 5.2.6 shows the type of fertilizers used and the occurrence of dermatitis. There is no significant association between the types of fertilizers used and the occurrence of dermatitis ($\chi^2 = 4.502$, $df = 4$, $p = 0.342$).

Table 5.2.4: The Occurrence of Dermatitis Among Paddy Field Farmers with the Application of Fertilizers

Application of Fertilizers	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	168	179	48.4
No	3	4	42.9
Unavailable	1	4	20.0
Total	172	187	-

Table 5.2.5: Type of Fertilizers used by the Paddy Field Farmers

Fertilizer Types	Number of Farmers *
No Fertilizer Used	124 (34.5)
Urea	204 (56.8)
KBC	1 (0.3)
Don't Know/Can't Remember Name	28 (7.8)
Data Unavailable	2 (0.6)
Total	359

*per cent in parenthesis

Table 5.2.6: The Occurrence of Dermatitis among Paddy Field Farmers with the Type of Fertilizers Used

Type of Fertilizers Used	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
No Fertilizer Used	64	60	51.6
Urea	96	108	47.1
KBC	1	-	100
Don't Know/Can't Remember Name	11	17	39.3
Data Unavailable	-	2	-
Total	172	187	-

5.2.5 Weeding of Fields (“Merumput”)

Weeding of fields is the stage where the farmers go into the fields to remove the weeds (in the case of paddy the weeds are grasses) that grow in the fields. Table 5.2.7 shows the occurrence of dermatitis with the weeding stage. Weeding is usually done manually or by using pesticides where 40.7 per cent of the paddy farmers remove the weed manually and the remaining paddy farmers use pesticide. However 30.1 per cent of the farmers who used pesticides could not recall the type of pesticides being used. The pesticides commonly used are Amine 60 (10.0 per cent), Expand (8.6 per cent), Top, Paraquat, Acmacon 3G etc (Table 5.2.8). However no significant association was found between the type of pesticides used and the occurrence of dermatitis ($\chi^2 = 9.666$, $df = 9$, $p = 0.378$). Table 5.2.9 shows the occurrence of the dermatitis and pesticide usage during the weeding stage. Pearson Chi-Square shows no significant association between the usage of pesticide during the weeding stage and the occurrence of dermatitis ($\chi^2 = 1.878$, $df = 2$, $p = 0.391$).

Table 5.2.7: The Occurrence of Dermatitis Among Paddy Field Farmers during the Weeding Stage (Merumput)

Weeding Stage	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	169	179	48.6
No	2	4	33.3
Unavailable	1	4	20.0
Total	172	187	-

Table 5.2.8: Type of Pesticides used by the Paddy Field Farmers during the Weeding Stage

Pesticides Types	Number of Farmers *
No Pesticides used	146 (40.7)
Amine 60	36 (10.0)
Expand	31 (8.6)
Top	15 (4.2)
Paraquat	5 (1.4)
Acmacon 3G	4 (1.1)
Others (EMMY, Gramoxone & Nabu)	7 (1.9)
Combination of 2 types of pesticides	5 (1.4)
Don't Know/Can't Remember Name	108 (30.1)
Data Unavailable	2 (0.6)
Total	359

*per cent in parenthesis

Table 5.2.9: The Occurrence of Dermatitis among Paddy Field Farmers with the Usage of Pesticides during the Weeding Stage

Pesticides Usage	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	71	78	47.7
No	101	107	48.6
Unavailable	0	2	-
Total	172	187	-

5.2.6 Harvesting of Paddy

Before the harvesting stage, pesticides are used again by farmers to remove weeds and Table 5.2.10 shows the types of pesticide used during the harvesting stage. The majority of the farmers (47.9 per cent) did not use pesticides during the harvesting stage, and 35.7 per cent who used pesticides could not remember what type of pesticides were used. The remaining used FAS TAC (5.3 per cent), Acmacon (2.5 per cent), Polydon (2.2 per cent), Thiodan (1.9 per cent) and other

type of pesticides. There is no significant association between the type of pesticides used during harvesting and the occurrence of dermatitis ($\chi^2 = 12.571$, $df = 8$, $p = 0.130$). Table 5.2.11 shows the usage of pesticides and the occurrence of dermatitis and Table 5.2.12 shows the occurrence of dermatitis and the stage of harvesting. The Pearson Chi-Square shows that there is no association between the occurrence of dermatitis and the harvesting stage ($\chi^2 = 2.131$, $df = 2$, $p = 0.345$).

Table 5.2.10: Type of Pesticides used by the Paddy Field Farmers during the Harvesting Stage

Pesticides Types	Number of Farmers *
No Pesticides used	172 (47.9)
FAS TAC	19 (5.3)
Acmacon	9 (2.5)
Polydon	8 (2.2)
Thiodan	7 (1.9)
From Government	6 (1.7)
Others (Nabu, Paraquat, Heocluse, ELLA, Expand)	8 (2.2)
Don't Know/Can't Remember Name	128 (35.7)
Data Unavailable	2 (0.6)
Total	359

*per cent in parenthesis

Table 5.2.11: The Occurrence of Dermatitis Among Paddy Field Farmers with Usage of Pesticides During the Harvesting Stage

Pesticides Usage	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	85	86	49.7
No	87	99	46.8
Unavailable	0	2	-
Total	172	187	-

Table 5.2.12: The Occurrence of Dermatitis Among Paddy Field Farmers During the Harvesting Stage

Harvesting Stage	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	169	179	48.6
No	2	4	33.3
Unavailable	1	4	20.0
Total	172	187	-

5.2.7 Hours Spent in the Field

The hours spent in the field range from one hour to nine hours. The majority of the farmers (55 per cent) spent 6 hours in the field with the mean time spent being 5.77 hours (sd = 1.02). Table 5.2.13 shows the frequencies of the farmers and time spent in the field. The Pearson Chi-Square shows that there is no significant association between the hours spent in the field and the occurrence of dermatitis ($\chi^2 = 10.027$, df = 7, p = 0.187).

Table 5.2.13: Time Spent in the Fields by the Paddy Field Farmers

Time spent in the fields (hours)	Number of Farmers *
1	1 (0.4)
3	5 (1.9)
4	23 (8.9)
5	45 (17.4)
6	142 (55.0)
7	33 (12.8)
8	8 (3.1)
9	1 (0.4)
Total	258

*per cent in parenthesis

5.3 Occurrence of Dermatitis Versus Water Sources for Farming and Domestic Usage

5.3.1 Water Sources For Farming

Table 5.3.1 shows the occurrence of dermatitis and the water sources used for the paddy fields irrigation. The majority of the farmers used water sources from the river (50.6 per cent) and stream [anak sungai] (46.4). Only 1.1 per cent (n = 4) used water from the irrigation canal (taliair) and 2 percent of the data are unavailable. The Pearson Chi-Square test of association shows that there is a significant association between the occurrence of dermatitis and the water sources used for farming ($\chi^2 = 8.440$, $df = 3$, $p = 0.038$).

Table 5.3.1: The Occurrence of Dermatitis Among Paddy Field Farmers with the Water Sources Usage for Farming

Water Sources	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
River	97	84	53.6
Stream (Anak Sungai)	71	95	42.8
Irrigation canal (taliair)	3	1	75.0
Unavailable	1	6	14.3
Total	172	187	-

5.3.1 Water Sources for Domestic Usage

Table 5.3.2 shows the occurrence of dermatitis and the water sources for domestic usage. Majority of the households used water sources from wells (64.3 per cent) for their domestic usage and the remaining households used water from the pipe (29.8 per cent) with 5.6 per cent using both wells and piped water. There is no significant association between the type of water sources for household used and the occurrence of dermatitis ($\chi^2 = 5.121$, $df = 3$, $p = 0.163$).

Table 5.3.2: The Occurrence of Dermatitis Among Paddy Field Farmers with the Water Sources for Domestic Usage

Water Sources	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Pipe Water	56	51	52.3
Well Water	103	128	44.6
Pipe and Well Water	13	7	65.0
Unavailable	0	1	-
Total	172	187	-

5.4 Occurrence of Dermatitis Versus Animal Husbandry

Five types of animals commonly reared in the villages were chicken, ducks, cows, goats and buffaloes with occasional pets such as birds and monkeys. The statistical analysis will concentrate on the five main types of animals. Table 5.4.1 shows the occurrence of dermatitis and the rearing of animals. There is no significant association found between general animal husbandry and the occurrence of dermatitis ($\chi^2 = 1.169$, $df = 1$, $p = 0.280$). No statistical analysis of the association of birds and monkeys with the occurrence of dermatitis was carried out due to the fact that the sample size was too small to take into consideration.

Table 5.4.1: The Occurrence of Dermatitis Among Paddy Field Farmers and Animal Husbandry

Animal Husbandry	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	131	133	49.6
No	41	54	43.2
Total	172	187	-

5.4.1 Rearing of Chickens

Table 5.4.2 shows the occurrence of dermatitis and the rearing of chickens. There was no significant association found between rearing of chickens and the occurrence of dermatitis ($\chi^2 = 0.766$, $df = 1$, $p = 0.382$).

Table 5.4.2: The Occurrence of Dermatitis Among Paddy Field Farmers and Rearing of Chickens

Animal Husbandry	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	117	119	49.6
No	55	68	44.7
Total	172	187	-

5.4.2 Rearing of Ducks

Table 5.4.3 shows the occurrence of dermatitis and the rearing of ducks. There was a significant association found between rearing of ducks and the occurrence of dermatitis ($\chi^2 = 4.561$, $df = 1$, $p = 0.033$).

Table 5.4.3: The Occurrence of Dermatitis Among Paddy Field Farmers and Rearing of Ducks

Animal Husbandry	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	72	58	55.4
No	100	129	43.7
Total	172	187	-

5.4.3 Rearing of Buffaloes

Table 5.4.4 shows the occurrence of dermatitis and the rearing of buffaloes. As in the rearing of chicken there was no significant association found between rearing of buffaloes and the occurrence of dermatitis ($\chi^2 = 1.138$, $df = 1$, $p = 0.286$).

Table 5.4.4: The Occurrence of Dermatitis Among Paddy Field Farmers and Rearing of Buffaloes

Animal Husbandry	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	6	11	35.3
No	166	176	48.5
Total	172	187	-

5.4.4 Rearing of Cows

Table 5.4.5 shows the occurrence of dermatitis and the rearing of cows and there was a significant association found between rearing of cows and the occurrence of dermatitis ($\chi^2 = 9.118$, $df = 1$, $p = 0.003$).

Table 5.4.5: The Occurrence of Dermatitis Among Paddy Field Farmers with Rearing of Cows

Animal Husbandry	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	83	61	57.6
No	89	126	41.4
Total	172	187	-

5.4.5 Rearing of Goats

Table 5.4.6 shows the occurrence of dermatitis and the rearing of goats. There was no significant association found between rearing of goats and the occurrence of dermatitis ($\chi^2 = 0.275$, $df = 1$, $p = 0.600$).

Table 5.4.6: The Occurrence of Dermatitis Among Paddy Field Farmers with Rearing of Goats

Animal Husbandry	Occurrence of Dermatitis		
	Yes	No	Prevalence (%)
Yes	13	17	43.3
No	159	170	48.3
Total	172	187	-