No.

Date

[HITUNGAN MANUAL]

Seorang peternak akan mengkombinasikan beberapa pakan ternak. Peternak itu ingin nutrisi untuk ternak ayamnya terpenuhi atau sesuai kebutuhan nutrisi ayam tetapi dengan biaya yang murah.

[INISIALISASI POPULASI] - STEP 1

No.	Nama	Harga	Nilai Nutrisi	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
1.	Jagung	3000	3250	1	0	0	0	1	1	0	1	0	1
2.	Dedek	4000	1750	1	1	0	1	1	1	0	0	0	1
3.	Apas Kelapa	4000	3500	1	1	1	1	0	0	0	1	1	1
4.	CGF	6000	4370	1	1	0	1	1	1	1	0	1	1
5.	Polar Gandum	8000	2160	1	0	1	1	1	0	1	0	0	1
6.	Pur Ayam	11000	3550	0	0	0	0	1	0	0	1	1	0
7.	Ampas Tahu	13000	4250	1	0	1	0	1	0	0	1	0	0

[EVALUASI KROMOSOM] - STEP 2

Harga									
K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
3	0	0	0	3	3	0	3	0	3
4	4	0	4	4	4	0	0	0	4
4	4	4	4	0	0	0	4	4	4
6	6	0	6	6	6	6	0	6	6
8	0	8	8	8	0	8	0	0	8
0	0	0	0	11	0	0	11	11	0
13	0	13	0	13	0	0	13	0	0
38	14	25	22	45	13	14	31	21	25

↳ /1000

Nilai / Nilai Fitness									
K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
325	0	0	0	325	325	0	325	0	325
175	175	0	175	175	175	0	0	0	175
350	350	350	350	0	0	0	350	350	350
437	437	0	437	437	437	437	0	437	437
216	0	216	216	216	0	216	0	0	216
0	0	0	0	355	0	0	355	355	0
425	0	425	0	425	0	0	425	0	0
1928	962	991	1778	1333	937	653	1455	1142	1303

↳ dibagi 10

kromosom terbaik

No.

Date

[SELEKSI KROMOSOM] - STEP 3

Fitness	
K1	19280
K2	9620
K3	9910
K4	11780
K5	19330
K6	9390
K7	6530
K8	14550
K9	11420
K10	15030
Σ	126.820

Fitness Relative		
K1	19280/126820	0,152
K2	9620/126820	0,075
K3	9910/126820	0,078
K4	11780/126820	0,092
K5	19330/126820	0,152
K6	9390/126820	0,073
K7	6530/126820	0,051
K8	14550/126820	0,114
K9	11420/126820	0,090
K10	15030/126820	0,118

Fitness Cumulative		Hasil
C[0]	0	0
C[1]	0 + 0,152	0,152
C[2]	0,152 + 0,075	0,227
C[3]	0,227 + 0,078	0,305
C[4]	0,305 + 0,092	0,397
C[5]	0,397 + 0,152	0,549
C[6]	0,549 + 0,073	0,622
C[7]	0,622 + 0,051	0,673
C[8]	0,673 + 0,114	0,787
C[9]	0,787 + 0,090	0,877
C[10]	0,877 + 0,118	1

Fitness Cumulative	
K1	0 - 0,152
K2	0,152 - 0,227
K3	0,227 - 0,305
K4	0,305 - 0,397
K5	0,397 - 0,549
K6	0,549 - 0,622
K7	0,622 - 0,673
K8	0,673 - 0,787
K9	0,787 - 0,877
K10	0,877 - 1

No.

Date

ROULLETE WHEEL - R[i] < C[1]

	Nilai Acak	Status
R1	0,03	K1
R2	0,60	K2 → K6
R3	0,80	K3 → K9
R4	0,37	K4
R5	0,14	K5
R6	0,15	K6 → K2
R7	0,16	K7
R8	0,68	K8
R9	0,90	K9 → K3
R10	0,92	K10

[KROMOSOM BARU]

K1	K1	1	1	1	1	1	0	1
K2	K2 [K6]	1	1	0	1	0	0	0
K3	K3 [K9]	0	0	1	1	0	1	0
K4	K4	0	1	1	1	1	0	0
K5	K5	1	1	0	1	1	1	1
K6	K6 [K2]	0	1	1	1	0	0	0
K7	K7	0	0	0	1	1	0	0
K8	K8	1	0	1	0	0	1	1
K9	K9 [K3]	0	0	1	0	1	0	1
K10	K10	1	1	1	1	1	0	0

[STEP - 4] - CROSSOVER

Pc = 50% = 0,5 Nilai Acak

N = 5 dan belakang

Roullete Wheel

pass1 0,2 • pass1 K1 & K2

Pass2 0,4 • pass2 K3 & K4

pass3 0,8 pass3 K5 & K6

pass4 0,6 pass4 K7 & K8

pass5 0,10 pass5 K9 & K10

No.

Date

No.	1	2	3	4	5	6	7	
Harga	3	4	4	6	8	11	13	→ / 1000
Nilai Nutrisi	225	175	350	357	216	355	425	→ / 10

K1	1	1	1	1	1	0	1
K2	1	1	0	1	0	0	0

[KROMOSOM HASIL CROSSOVER]

Hasil

								Harga
K1	1	1	0	1	0	0	0	13.000
K2	1	1	1	1	1	0	1	38.000

Perbaikan

K2	1	0	1	1	1	0	1	34.000
K2	1	0	1	1	0	0	1	26.000

K2	0	0	1	1	0	0	1	23.000

K3	0	0	1	1	0	1	0
K4	0	1	1	1	1	0	0

K3	0	0	1	1	1	0	0	18.000
K4	0	1	1	1	0	1	0	25.000

K1	1	1	0	1	0	0	0
K2	0	0	1	1	0	0	1
K3	0	0	1	1	1	0	0
K4	0	1	1	1	0	1	0
K5	1	1	0	1	1	1	1
K6	0	1	1	1	0	0	0
K7	0	0	0	1	1	0	0
K8	1	0	1	0	0	1	1
K9	0	0	1	0	1	0	1
K10	1	1	1	1	1	0	0

[STEP-5] - MUTASI

PM = 70% = 0,7

N = 2 dari belakang

Roullete Wheel

R1	0,11	K1 •
R2	0,08	K2 •
R3	0,86	K3
R4	0,66	K4 •
R5	0,67	K5 •
R6	0,94	K6
R7	0,99	K7
R8	0,71	K8
R9	0,99	K9
R10	0,81	K10

No

Date

Harga

K1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |

Hasil

| 1 | 1 | 0 | 1 | 0 | 0 | 0 | 13000 |

K2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |

Hasil

| 0 | 0 | 1 | 1 | 0 | 1 | 0 | 21000 |

Harga

K4 | 0 | 1 | 1 | 1 | 0 | 1 | 0 |

Hasil

| 0 | 1 | 1 | 1 | 0 | 0 | 1 | 27.000 |

Perbaikan

| 0 | 0 | 1 | 1 | 0 | 0 | 1 | 23.000 |

K5 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |

Hasil

| 1 | 0 | 0 | 1 | 1 | 1 | 1 | 41.000 |

Perbaikan

| 1 | 0 | 0 | 1 | 0 | 1 | 1 | 33.000 |

Perbaikan

| 0 | 0 | 0 | 1 | 0 | 1 | 1 | 30.000 |

Perbaikan

| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 19.000 |

[KROMOSOM HASIL MUTASI]

K1	1	1	0	1	0	0	0
K2	0	0	1	1	0	1	0
K3	0	0	1	1	1	0	0
K4	0	0	1	1	0	0	1
K5	0	0	0	1	0	0	1
K6	0	1	1	1	0	0	0
K7	0	0	0	1	1	0	0
K8	1	0	1	0	0	1	1
K9	0	0	1	0	1	0	1
K10	1	1	1	1	1	0	0

No.

Date

[STEP-6] - ELITISM

								Total	
K1	1	1	0	1	0	0	0	9370	
K2	0	0	1	1	0	1	0	11420	
K3	0	0	1	1	1	0	0	10.030	
K4	0	0	1	1	0	0	1	12120	
K5	0	0	0	1	0	0	1	8620	
K6	0	1	1	1	0	0	0	9620	
K7	0	0	0	1	1	0	0	6530	→ terkecil, sehingga diganti dengan K terbaik dr step 1
K8	1	0	1	0	0	1	1	14 550	
K9	0	0	1	0	1	0	1	9910	
K10	1	1	1	1	1	0	0	15030	

[STEP-7] - HASIL

KROMOSGENERASI KE-2

K1	1	1	0	1	0	0	0	9370
K2	0	0	1	1	0	1	0	11420
K3	0	0	1	1	1	0	0	10030
K4	0	0	1	1	0	0	1	12120
K5	0	0	0	1	0	0	1	8620
K6	0	1	1	1	0	0	0	9620
K7	1	1	0	1	1	1	1	19330
K8	1	0	1	0	0	1	1	14550
K9	0	0	1	0	1	0	1	9910
K10	1	1	1	1	1	0	0	15030 ✓

Average 120000

solusi K10 = Jagung, Dedek, Apas Kelapa, C6F, Polar Gandum.