


DAFTAR PUSTAKA

- Abdullah, L., & Abidin, N. H. (2014). A Fuzzy Linear Programming in Optimizing Meat Production. *International Journal of Engineering and Technology*, 6(1), 436-444.
- Allahviranloo, T., Lotfi, F. H., & Kiasary, M. K. (2008). Solving Fully Fuzzy Linear Programming Problem by the Ranking Function. *Applied Mathematical Sciences*, 2(1), 19-32.
- Amiri, N. M., Nasser, S. H., & Yazdani, A. (2009). Fuzzy Primal Simplex Algorithms for Solving Fuzzy Linear Programming Problems. *Iranian Journal of Operation Research*, 1(2), 68-84.
- Hakim, G. P., Septiyana, D., Firdausi, A., Mariati, F. R., & Budiyanto, S. (2021). *Sistem Fuzzy - Panduan Lengkap Aplikatif*. Yogyakarta: Penerbit ANDI.
- Halida, U. M. (2020). *Teori Pengantar Bisnis*. Pamekasan: Duta Media Publishing.
- Hillier, F. S., & Lieberman, G. J. (2001). *Introduction to Operations Research, Seventh Edition*. New York: McGraw-Hill.
- Kaur, J., & Kumar, A. (2016). *An Introduction to Fuzzy Linear Programming Problems*. New York: Springer International Publishing.
- Kumar, A., Kaur, J., & Singh, P. (2011). A New Method for Solving Fully Fuzzy Linear Programming. *Applied Mathematical Modelling*, 35, 817-823.
- Kusumadewi, S., & Purnomo, H. (2010). *Aplikasi Logika Fuzzy untuk Pendukung Keputusan*. Yogyakarta: Graha Ilmu.
- Nasser, S. H. (2008). A Method for Solving Fuzzy Linear Programming by Solving Linear Programming. *Applied Mathematical Sciences*, 2(50), 2473-2480.
- Nasser, S. H., & Behmanesh, E. (2019). Linear Programming with Triangular Fuzzy Numbers - A Case Study in a Finance and Credit Institute. *Fuzzy Information and Engineering*, 5(3), 295-315.
- Pandian, P., & Jayalakshmi, M. (2010). A New Method for Solving Integer Linear Programming Problems with Fuzzy Variables. *Applied Mathematical Sciences*, 4(20), 997-1004.
- Purba, R. (2012). Penerapan Logika Fuzzy pada Program Linear. *Jurusan Matematika FKIP Universitas Musamus Merauke*.

- Rangkuti, A. (2022). *7 Model Riset Operasi & Aplikasinya*. Surabaya: Brilian Internasional.
- Rao, S. S. (2009). *Engineering Optimization Theory and Practice*. New Jersey: John Wiley & Sons, Inc.
- Siang, J. J. (2014). *Riset Operasi dalam Pendekatan Algoritmis*. Yogyakarta: CV. Andi Offset.
- Simarmata, J. E. (2022). *Buku Ajar Riset Operasi dengan Excel dan POM_QM*. Solok: Mitra Cendekia Media.
- Subagyo, P., Asri, M., & Handoko, T. H. (1984). *Dasar-dasar Operations Research*. Yogyakarta: BPFE.
- Weiss, H. J. (2010). *POM-QM for Windows Version 4*. New Jersey: Pearson Education.
- Zimmermann, H. J. (2001). *Fuzzy Set Theory and Its Applications Fourth Edition*. New York: Kluwer Academic Publisher.

Lampiran 1: Surat Kesiadaan untuk Memberikan Data

 **MEERA CAKE MAKASSAR**
Jl. Tamangapa Raya 3/82, Bangkala, Kec. Manggala, Kota Makassar,
Sulawesi Selatan.
Telepon 0821-7756-1640

Makassar, 5 Februari 2023

No. :
Hal : **Kesiadaan untuk Memberikan Data**
Lampiran : -

Kepada Yth.
Ketua Departemen Matematika
Universitas Hasanuddin
Makassar
Di-
Tempat

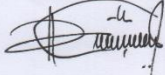
Dengan hormat,
Kami dari Meera Cake Makassar, menerangkan bahwa mahasiswa yang tersebut namanya di bawah ini:

Nama : **Ananda Risky Khalik**
NIM : H011191077
Program Studi : Matematika

Benar telah melakukan pengambilan data di Meera Cake Makassar guna mendukung penelitian tugas akhir yang berjudul "**Penerapan *Fully Fuzzy Linear Programming* dengan Menggunakan Bilangan *Fuzzy* Segitiga dalam Optimasi Produksi (Studi Kasus: Meera Cake Makassar)**".

Demikian surat keterangan ini dibuat untuk digunakan sebagaimana mestinya.

Hormat Kami,
Meera Cake Makassar


Nur Hikmah
Penanggungjawab

Lampiran 2: Data Kebutuhan Bahan Baku



MEERA CAKE MAKASSAR

Jl. Tamangapa Raya 3/82, Bangkala, Kec. Manggala, Kota Makassar,
Sulawesi Selatan.
Telepon 0821-7756-1640

Kebutuhan bahan baku setiap jenis kue:

Jenis Bahan Baku (kg)	Jenis Kue					
	Nastar	Chocostick	Kastangle	Salju	Mente	Palm Sugar
Mentega	2	2	2	2	2	2
Tepung Terigu	4	4	4	4	4	4
Gula	1	1	0,7	1,5	1	1
Susu Bubuk	0,162	0,216	0,216	0,162	0,216	0,162
Telur	0,78	0,78	0,78	0,78	0,78	0,78
Tepung Maizena	0,2	0,2	0,2	0,2	0,2	0,2
Selai	2	-	-	-	-	-
Coklat stick	-	3	-	-	-	-
Keju	-	-	0,35	-	-	-
Mente	-	-	-	-	0,8	-
Palm Sugar	-	-	-	-	-	1,2

Makassar, 5 Februari 2023
Meera Cake Makassar

Nur Hikmah
Penanggungjawab

Lampiran 3: Data Persediaan Bahan Baku dan Biaya Produksi, Harga Jual, dan Keuntungan



MEERA CAKE MAKASSAR

Jl. Tamangapa Raya 3/82, Bangkala, Kec. Manggala, Kota Makassar,
Sulawesi Selatan.
Telepon 0821-7756-1640

Data persediaan bahan baku:

Bahan Baku	Persediaan (gram)
Mentega	15000
Tepung Terigu	30000
Gula	10000
Susu Bubuk	1350
Telur	5850
Tepung Maizena	2000
Selai	2000
Coklat Stik	3600
Keju	420
Mente	1000
Palm Sugar	1600

Data biaya produksi, harga jual, dan keuntungan per kemasan:

Jenis Kue	Biaya Produksi	Harga Jual	Keuntungan
Nastar	Rp14.200	Rp27.000	Rp12.800
Choco Stick	Rp18.100	Rp28.000	Rp9.900
Kastangle	Rp13.500	Rp27.000	Rp13.500
Salju	Rp13.800	Rp27.000	Rp13.200
Mente	Rp15.900	Rp28.000	Rp12.100
Palm Sugar	Rp11.800	Rp27.000	Rp15.200

Makassar, 5 Februari 2023
Meera Cake Makassar

Nur Hikmah
Penanggungjawab

Constraint 32	0	0	0	0	0	0	0	0	0	0	0	63	0	0	0	0	0	0	<=	1600	32.618
Constraint 33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63.63	<=	1680	17.095
Constraint 34	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	<=	0	0
Constraint 35	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	<=	0	0
Constraint 36	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	<=	0	0
Constraint 37	0	0	0	0	0	0	0	1	0	0	0	0	0	0	-1	0	0	0	<=	0	0
Constraint 38	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	<=	0	0
Constraint 39	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	<=	0	62.386
Constraint 40	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	<=	0	36.667
Constraint 41	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	<=	0	0
Constraint 42	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	<=	0	0
Constraint 43	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	<=	0	0
Constraint 44	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	<=	0	0
Constraint 45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	<=	0	0
Solution	18.278	4.641	17.297	35.488	20.417	24.371	19.048	6.829	18.026	35.488	21.277	25.397	19.802	7.878	18.026	37.024	22.119	26.403		1644053	

Lampiran 6: Tabel Awal Simpleks Fully Fuzzy Linear Programming dengan Asumsi Toleransi Kebutuhan Bahan Baku $\pm 2\%$

Basis	x1	x2	x3	x4	x5	x6	y1	y2	y3	y4	y5	y6	z1	z2	z3	z4	z5	z6	s1	t1	u1	s2	t2	u2	s3	t3	u3
s1	102.90	98	130.34	130.34	115.64	102.9	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
t1	0	0	0	0	0	0	105	100	133	133	118	105	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
u1	0	0	0	0	0	0	0	0	0	0	0	0	107.1	102	135.66	135.7	120.36	107.1	0	0	1	0	0	0	0	0	0
s2	205.8	196	261.66	261.66	230.3	205.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
t2	0	0	0	0	0	0	210	200	267	267	235	210	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
u2	0	0	0	0	0	0	0	0	0	0	0	0	214.2	204	272.34	272.3	239.7	214.2	0	0	0	0	0	1	0	0	0
s3	51.94	49	46.06	98	56.84	51.94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
t3	0	0	0	0	0	0	53	50	47	100	58	53	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
u3	0	0	0	0	0	0	0	0	0	0	0	0	54.06	51	47.94	102	59.16	54.06	0	0	0	0	0	0	0	0	1
s4	7.84	10.78	13.72	10.78	12.74	7.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t4	0	0	0	0	0	0	8	11	14	11	13	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u4	0	0	0	0	0	0	0	0	0	0	0	0	8.16	11.22	14.28	11.22	13.26	8.16	0	0	0	0	0	0	0	0	0
s5	40.18	38.22	50.96	50.96	45.08	40.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t5	0	0	0	0	0	0	41	39	52	52	46	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u5	0	0	0	0	0	0	0	0	0	0	0	0	41.82	39.78	53.04	53.04	46.92	41.82	0	0	0	0	0	0	0	0	0
s6	9.8	9.8	12.74	12.74	11.76	9.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t6	0	0	0	0	0	0	10	10	13	13	12	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u6	0	0	0	0	0	0	0	0	0	0	0	0	10.2	10.2	13.26	13.26	12.24	10.2	0	0	0	0	0	0	0	0	0
s7	102.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t7	0	0	0	0	0	0	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u7	0	0	0	0	0	0	0	0	0	0	0	0	107.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
s8	0	147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t8	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u8	0	0	0	0	0	0	0	0	0	0	0	0	0	153	0	0	0	0	0	0	0	0	0	0	0	0	0
s9	0	0	22.834	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t9	0	0	0	0	0	0	0	0	23.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23.766	0	0	0	0	0	0	0	0	0	0	0	0
s10	0	0	0	0	46.06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t10	0	0	0	0	0	0	0	0	0	0	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47.94	0	0	0	0	0	0	0	0	0	0
s11	0	0	0	0	0	61.74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t11	0	0	0	0	0	0	0	0	0	0	0	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64.26	0	0	0	0	0	0	0	0	0
m1	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
n1	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
m2	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
n2	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0
m3	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
n3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0
m4	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
n4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0
m5	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
n5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0
m6	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
n6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0
Z	-3272.5	-2248.8	-3153.8	-3035	-2826.3	-3403	-6900	-4950	-6650	-6400	-6050	-7100	-3638	-2701	-3496.3	-3365	-3223.8	-3697.5	0	0	0	0	0	0	0	0	0

Lampiran 7: Hasil Penyelesaian Fully Fuzzy Linear Programming dengan Asumsi Toleransi Kebutuhan Bahan Baku $\pm 2\%$

Linear Programming Results																					
(untitled) Solution																					
	X1	X2	X3	X4	X5	X6	Y1	Y2	Y3	Y4	Y5	Y6	Z1	Z2	Z3	Z4	Z5	Z6	RHS	Dual	
Maximize	3272.5	2248.75	3153.75	3035	2826.25	3402.5	6900	4950	6650	6400	6050	7100	3637.5	2701.25	3496.25	3365	3223.75	3697.5			
Constraint 1	102.9	98	130.34	130.34	115.64	102.9	0	0	0	0	0	0	0	0	0	0	0	0	<=	14250	0
Constraint 2	0	0	0	0	0	0	105	100	133	133	118	105	0	0	0	0	0	0	<=	15000	0
Constraint 3	0	0	0	0	0	0	0	0	0	0	0	0	107.1	102	135.66	135.66	120.36	107.1	<=	15750	0
Constraint 4	205.8	196	261.66	261.66	230.3	205.8	0	0	0	0	0	0	0	0	0	0	0	0	<=	28500	0
Constraint 5	0	0	0	0	0	0	210	200	267	267	235	210	0	0	0	0	0	0	<=	30000	0
Constraint 6	0	0	0	0	0	0	0	0	0	0	0	0	214.2	204	272.34	272.34	239.7	214.2	<=	31500	0
Constraint 7	51.94	49	46.06	98	56.84	51.94	0	0	0	0	0	0	0	0	0	0	0	0	<=	9500	0
Constraint 8	0	0	0	0	0	0	53	50	47	100	58	53	0	0	0	0	0	0	<=	10000	0
Constraint 9	0	0	0	0	0	0	0	0	0	0	0	0	54.06	51	47.94	102	59.16	54.06	<=	10500	0
Constraint 10	7.84	10.78	13.72	10.78	12.74	7.84	0	0	0	0	0	0	0	0	0	0	0	0	<=	1282.5	0
Constraint 11	0	0	0	0	0	0	8	11	14	11	13	8	0	0	0	0	0	0	<=	1350	44.545
Constraint 12	0	0	0	0	0	0	0	0	0	0	0	0	8.16	11.22	14.28	11.22	13.26	8.16	<=	1417.5	63.28
Constraint 13	40.18	38.22	50.96	50.96	45.08	40.18	0	0	0	0	0	0	0	0	0	0	0	0	<=	5557.5	58.837
Constraint 14	0	0	0	0	0	0	41	39	52	52	46	41	0	0	0	0	0	0	<=	5850	114.359
Constraint 15	0	0	0	0	0	0	0	0	0	0	0	0	41.82	39.78	53.04	53.04	46.92	41.82	<=	6142.5	50.057
Constraint 16	9.8	9.8	12.74	12.74	11.76	9.8	0	0	0	0	0	0	0	0	0	0	0	0	<=	1900	0
Constraint 17	0	0	0	0	0	0	10	10	13	13	12	10	0	0	0	0	0	0	<=	2000	0
Constraint 18	0	0	0	0	0	0	0	0	0	0	0	0	10.2	10.2	13.26	13.26	12.24	10.2	<=	2100	0
Constraint 19	102.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<=	1900	8.828
Constraint 20	0	0	0	0	0	0	105	0	0	0	0	0	0	0	0	0	0	0	<=	2000	17.666
Constraint 21	0	0	0	0	0	0	0	0	0	0	0	0	107.1	0	0	0	0	0	<=	2100	9.596
Constraint 22	0	147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<=	3420	0
Constraint 23	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0	0	<=	3600	0
Constraint 24	0	0	0	0	0	0	0	0	0	0	0	0	0	153	0	0	0	0	<=	3780	0
Constraint 25	0	0	22.834	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<=	399	6.806
Constraint 26	0	0	0	0	0	0	0	0	23.3	0	0	0	0	0	0	0	0	0	<=	420	.743
Constraint 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23.766	0	0	0	<=	441	0
Constraint 28	0	0	0	0	46.06	0	0	0	0	0	0	0	0	0	0	0	0	0	<=	950	3.775
Constraint 29	0	0	0	0	0	0	0	0	0	0	47	0	0	0	0	0	0	0	<=	1000	4.477
Constraint 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47.94	0	<=	1050	.751
Constraint 31	0	0	0	0	0	61.74	0	0	0	0	0	0	0	0	0	0	0	0	<=	1520	16.819
Constraint 32	0	0	0	0	0	0	0	0	0	0	0	63	0	0	0	0	0	0	<=	1600	32.618
Constraint 33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64.26	<=	1680	16.928

Constraint 34	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	<=	0	0
Constraint 35	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	<=	0	0
Constraint 36	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	<=	0	0
Constraint 37	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	<=	0	0
Constraint 38	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	<=	0	0
Constraint 39	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	<=	0	62.386
Constraint 40	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	<=	0	36.667
Constraint 41	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	<=	0	0
Constraint 42	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	<=	0	0
Constraint 43	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	<=	0	0
Constraint 44	0	0	0	0	0	1	0	0	0	0	0	0	-1	0	0	0	0	0	0	<=	0	0
Constraint 45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	<=	0	0
Solution	18.465	5.171	17.474	35.488	20.625	24.619	19.048	6.829	18.026	35.488	21.277	25.397	19.608	7.608	18.026	36.628	21.902	26.144			1643624	

Lampiran 8: Tabel Awal Simpleks *Fully Fuzzy Linear Programming* dengan Asumsi Toleransi Kebutuhan Bahan Baku $\pm 3\%$

Basis	x1	x2	x3	x4	x5	x6	y1	y2	y3	y4	y5	y6	z1	z2	z3	z4	z5	z6	s1	t1	u1	s2	t2	u2	s3	t3	u3
s1	101.85	97	129.01	129.01	114.46	101.85	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
t1	0	0	0	0	0	0	105	100	133	133	118	105	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
u1	0	0	0	0	0	0	0	0	0	0	0	0	108.15	103	136.99	137	121.54	108.15	0	0	1	0	0	0	0	0	0
s2	203.7	194	258.99	258.99	227.95	203.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
t2	0	0	0	0	0	0	210	200	267	267	235	210	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
u2	0	0	0	0	0	0	0	0	0	0	0	0	216.3	206	275.01	275	242.05	216.3	0	0	0	0	0	1	0	0	0
s3	51.41	48.5	45.59	97	56.26	51.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
t3	0	0	0	0	0	0	53	50	47	100	58	53	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
u3	0	0	0	0	0	0	0	0	0	0	0	0	54.59	51.5	48.41	103	59.74	54.59	0	0	0	0	0	0	0	0	1
s4	7.76	10.67	13.58	10.67	12.61	7.76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t4	0	0	0	0	0	0	8	11	14	11	13	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u4	0	0	0	0	0	0	0	0	0	0	0	0	8.24	11.33	14.42	11.33	13.39	8.24	0	0	0	0	0	0	0	0	0
s5	39.77	37.83	50.44	50.44	44.62	39.77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t5	0	0	0	0	0	0	41	39	52	52	46	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u5	0	0	0	0	0	0	0	0	0	0	0	0	42.23	40.17	53.56	53.56	47.38	42.23	0	0	0	0	0	0	0	0	0
s6	9.7	9.7	12.61	12.61	11.64	9.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t6	0	0	0	0	0	0	10	10	13	13	12	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u6	0	0	0	0	0	0	0	0	0	0	0	0	10.3	10.3	13.39	13.39	12.36	10.3	0	0	0	0	0	0	0	0	0
s7	101.85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t7	0	0	0	0	0	0	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u7	0	0	0	0	0	0	0	0	0	0	0	0	108.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
s8	0	145.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t8	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u8	0	0	0	0	0	0	0	0	0	0	0	0	0	154.5	0	0	0	0	0	0	0	0	0	0	0	0	0
s9	0	0	22.601	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t9	0	0	0	0	0	0	0	0	23.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23.999	0	0	0	0	0	0	0	0	0	0	0	0
s10	0	0	0	0	45.59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t10	0	0	0	0	0	0	0	0	0	0	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48.41	0	0	0	0	0	0	0	0	0	0
s11	0	0	0	0	0	61.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
t11	0	0	0	0	0	0	0	0	0	0	0	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
u11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64.89	0	0	0	0	0	0	0	0	0
m1	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
n1	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
m2	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
n2	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0
m3	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
n3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0
m4	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
n4	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0
m5	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
n5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0
m6	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
n6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0
Z	-3272.5	-2248.8	-3153.8	-3035	-2826.3	-3403	-6900	-4950	-6650	-6400	-6050	-7100	-3638	-2701	-3496.3	-3365	-3223.8	-3697.5	0	0	0	0	0	0	0	0	0

Lampiran 9: Hasil Penyelesaian Fully Fuzzy Linear Programming dengan Asumsi Toleransi Kebutuhan Bahan Baku $\pm 3\%$

Linear Programming Results																					
(untitled) Solution																					
	X1	X2	X3	X4	X5	X6	Y1	Y2	Y3	Y4	Y5	Y6	Z1	Z2	Z3	Z4	Z5	Z6	RHS	Dual	
Maximize	3272.5	2248.75	3153.75	3035	2826.25	3402.5	6900	4950	6650	6400	6050	7100	3637.5	2701.25	3496.25	3365	3223.75	3697.5			
Constraint 1	101.85	97	129.01	129.01	114.46	101.85	0	0	0	0	0	0	0	0	0	0	0	0	<=	14250	0
Constraint 2	0	0	0	0	0	0	105	100	133	133	118	105	0	0	0	0	0	0	<=	15000	0
Constraint 3	0	0	0	0	0	0	0	0	0	0	0	0	108.15	103	136.99	136.99	121.54	108.15	<=	15750	0
Constraint 4	203.7	194	258.99	258.99	227.95	203.7	0	0	0	0	0	0	0	0	0	0	0	0	<=	28500	11.591
Constraint 5	0	0	0	0	0	0	210	200	267	267	235	210	0	0	0	0	0	0	<=	30000	22.133
Constraint 6	0	0	0	0	0	0	0	0	0	0	0	0	216.3	206	275.01	275.01	242.05	216.3	<=	31500	9.618
Constraint 7	51.41	48.5	45.59	97	56.26	51.41	0	0	0	0	0	0	0	0	0	0	0	0	<=	9500	0
Constraint 8	0	0	0	0	0	0	53	50	47	100	58	53	0	0	0	0	0	0	<=	10000	0
Constraint 9	0	0	0	0	0	0	0	0	0	0	0	0	54.59	51.5	48.41	103	59.74	54.59	<=	10500	0
Constraint 10	7.76	10.67	13.58	10.67	12.61	7.76	0	0	0	0	0	0	0	0	0	0	0	0	<=	1282.5	0
Constraint 11	0	0	0	0	0	0	8	11	14	11	13	8	0	0	0	0	0	0	<=	1350	47.58
Constraint 12	0	0	0	0	0	0	0	0	0	0	0	0	8.24	11.33	14.42	11.33	13.39	8.24	<=	1417.5	63.54
Constraint 13	.611	.582	.776	.776	.679	.611	0	0	0	0	0	0	0	0	0	0	0	0	<=	85.5	0
Constraint 14	0	0	0	0	0	0	.63	.6	.8	.8	.7	.63	0	0	0	0	0	0	<=	90	0
Constraint 15	0	0	0	0	0	0	0	0	0	0	0	0	.649	.618	.824	.824	.721	.649	<=	94.5	0
Constraint 16	9.7	9.7	12.61	12.61	11.64	9.7	0	0	0	0	0	0	0	0	0	0	0	0	<=	1900	0
Constraint 17	0	0	0	0	0	0	10	10	13	13	12	10	0	0	0	0	0	0	<=	2000	0
Constraint 18	0	0	0	0	0	0	0	0	0	0	0	0	10.3	10.3	13.39	13.39	12.36	10.3	<=	2100	0
Constraint 19	101.85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<=	1900	8.948
Constraint 20	0	0	0	0	0	0	105	0	0	0	0	0	0	0	0	0	0	0	<=	2000	17.823
Constraint 21	0	0	0	0	0	0	0	0	0	0	0	0	108.15	0	0	0	0	0	<=	2100	9.556
Constraint 22	0	145.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<=	3420	0
Constraint 23	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0	0	<=	3600	0
Constraint 24	0	0	0	0	0	0	0	0	0	0	0	0	0	154.5	0	0	0	0	<=	3780	0
Constraint 25	0	0	22.601	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<=	399	6.711
Constraint 26	0	0	0	0	0	0	0	0	23.3	0	0	0	0	0	0	0	0	0	<=	420	.397
Constraint 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	<=	441	0
Constraint 28	0	0	0	0	45.59	0	0	0	0	0	0	0	0	0	0	0	0	0	<=	950	4.035
Constraint 29	0	0	0	0	0	0	0	0	0	0	47	0	0	0	0	0	0	0	<=	1000	4.897
Constraint 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48.41	0	<=	1050	.927
Constraint 31	0	0	0	0	0	61.11	0	0	0	0	0	0	0	0	0	0	0	0	<=	1520	17.04
Constraint 32	0	0	0	0	0	0	0	0	0	0	0	63	0	0	0	0	0	0	<=	1600	32.879

Constraint 33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64.89	<=	1680	16.852
Constraint 34	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	<=	0	0
Constraint 35	0	0	0	0	0	0	1	0	0	0	0	-1	0	0	0	0	0	0	0	<=	0	0
Constraint 36	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	<=	0	0
Constraint 37	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	<=	0	0
Constraint 38	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	<=	0	0
Constraint 39	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	<=	0	65.088
Constraint 40	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	<=	0	32.919
Constraint 41	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	<=	0	0
Constraint 42	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	<=	0	0
Constraint 43	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	<=	0	0
Constraint 44	0	0	0	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	<=	0	0
Constraint 45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	0	<=	0	0
Solution	18.655	5.521	17.654	35.677	20.838	24.873	19.048	6.64	18.026	35.677	21.277	25.397	19.417	7.149	18.026	36.435	21.69	25.89		1643706.0		

Lampiran 10: Hasil Penyelesaian dengan Pemrograman Linear

Linear Programming Results									
(untitled) Solution									
	X1	X2	X3	X4	X5	X6		RHS	Dual
Maximize	13800	9900	13300	12800	12100	14200			
Constraint 1	105	100	133	133	118	105	<=	15000	0
Constraint 2	210	200	267	267	235	210	<=	30000	0
Constraint 3	53	50	47	100	58	53	<=	10000	0
Constraint 4	8	11	14	11	13	8	<=	1350	109.091
Constraint 5	41	39	52	52	46	41	<=	5850	223.077
Constraint 6	10	10	13	13	12	10	<=	2000	0
Constraint 7	105	0	0	0	0	0	<=	2000	36.011
Constraint 8	0	150	0	0	0	0	<=	3600	0
Constraint 9	0	0	23.4	0	0	0	<=	420	7.382
Constraint 10	0	0	0	0	47	0	<=	1000	8.942
Constraint 11	0	0	0	0	0	63	<=	1600	66.367
Solution	19.048	6.913	17.949	35.502	21.277	25.397		1642524.0	