

APPENDICES

A1. Test Results for Structural Change (Dummy Variable) by OLS Method

(Source: Estimated from LIMDEP Program.)

MODEL COMMAND: CRMO;LHS=LN;RHS=ONE,LNLD,LNLB,LNMA, LNIR,T,D,X1,X2,X3,X4,TT;
CLS: B(7)=0\$

Ordinary Least Squares Estimates

Dependent Variable.....	LN
Number of Observations.....	272.
Mean of Dependent Variable..	14.67862
Std. Dev. of Dep. Variable..	.58742
Std. Error of Regression....	.19501
Sum of Squared Residuals....	9.8878
R - Squared.....	.89426
Adjusted R - Squared.....	.88979
F-Statistic (11, 260).....	199.89744
Significance of F-Test.....	.00000
Log-Likelihood.....	64.685
Restricted (Slopes=0) Log-L.	-240.74
Chi-Squared (11).....	610.85
Significance Level.....	.32173E-13
Durbin - Watson Statistic.....	1.5382
Estimated Autocorrelation (Rho).....	.23091

Unconstrained Least Squares Estimates

Variable	Coefficient	Std. Error	T-ratio (Sig.Lvl)	Mean of X	Std.Dev.of X
ONE	10.9100	.3481	31.339 (.00000)	1.0000	.00000
LNLD	.696780E-01	.5397E-01	1.291 (.19471)	7.0768	.78314
LNLB	.564093	.5497E-01	10.262 (.00000)	5.3861	.65702
LNMA	.933355E-01	.4522E-01	2.064 (.03778)	1.6756	1.1360
LNIR	.136572E-01	.1817E-01	.751 (.45942)	5.2348	1.2367
T	-.140086	.4369E-01	-3.207 (.00168)	9.0000	4.9080
D	-.373867E-01	.5010E-01	-.746 (.46262)	.58824	.49306
X1	.257804E-01	.5495E-02	4.692 (.00001)	64.100	36.172
X2	-.128901E-01	.5053E-02	-2.551 (.01096)	48.661	27.556
X3	-.441860E-02	.4363E-02	-1.013 (.31323)	18.358	17.563
X4	.483346E-02	.2372E-02	2.037 (.04025)	49.681	30.842
TT	.102697E-02	.8931E-03	1.150 (.24987)	105.00	90.898
Sigma	.195012	.8361E-02	23.324 (.00000)		

** Constrained Estimates **

F-Statistic = .557 with 1, 260 Degrees of Freedom
Significance Level of Test Statistic = .4626210

Ordinary Least Squares Estimates

Dependent Variable.....	LN _Y
Number of Observations.....	272.
Mean of Dependent Variable..	14.67862
Std. Dev. of Dep. Variable..	.58742
Std. Error of Regression....	.19485
Sum of Squared Residuals....	9.9089
R - Squared.....	.89403
Adjusted R - Squared.....	.88997
F-Statistic (10, 261).....	220.20527
Significance of F-Test.....	.00000
Log-Likelihood.....	64.416
Restricted (Slopes=0) Log-L.	-240.74
Chi-Squared (10).....	610.31
Significance Level.....	.32173E-13
Durbin - Watson Statistic.....	1.5367
Estimated Autocorrelation (Rho).....	.23164

Variable	Coefficient	Std. Error	T-ratio	(Sig.Lvl)	Mean of X	Std.Dev. of X
ONE	10.9340	.3466	31.542	(.00000)	1.0000	.00000
LNLD	.684976E-01	.5395E-01	1.270	(.20241)	7.0768	.78314
LNLB	.563220	.5496E-01	10.249	(.00000)	5.3861	.65702
LNMA	.951584E-01	.4516E-01	2.107	(.03404)	1.6756	1.1360
LNIR	.147954E-01	.1811E-01	.817	(.41991)	5.2348	1.2367
T	-.147146	.4265E-01	-3.450	(.00079)	9.0000	4.9080
D	.000000	.3727E-09	.000	(.95052)	.58824	.49306
X1	.258802E-01	.5493E-02	4.711	(.00001)	64.100	36.172
X2	-.128139E-01	.5052E-02	-2.536	(.01140)	48.661	27.556
X3	-.454744E-02	.4359E-02	-1.043	(.29837)	18.358	17.563
X4	.468616E-02	.2364E-02	1.982	(.04584)	49.681	30.842
TT	.122895E-02	.8511E-03	1.444	(.14582)	105.00	90.898
Sigma	.194847	.8354E-02	23.324	(.00000)		

A2. Test Results for Structural Change (Dummy Variable) by ML Method

MODEL COMMAND: FRONTIER;LHS=LN Y;RHS=ONE,LNLD,LNLB, LNMA, LNIR,T,D,X1,X2,X3,X4
 ,TT;CLS:B(7)=0;OUTPUT=5\$

Ordinary Least Squares Estimates

Dependent Variable..... LNY
 Number of Observations..... 272.
 Mean of Dependent Variable.. 14.67862
 Std. Dev. of Dep. Variable.. .58742
 Std. Error of Regression.... .19501
 Sum of Squared Residuals.... 9.8878
 R - Squared..... .89426
 Adjusted R - Squared..... .88979
 F-Statistic (11, 260)..... 199.89744
 Significance of F-Test..... .00000
 Log-Likelihood..... 64.685
 Restricted (Slopes=0) Log-L. -240.74
 Chi-Squared (11)..... 610.85
 Significance Level..... .32173E-13

Variable	Coefficient	Std. Error	T-ratio (Sig.Lvl)	Mean of X	Std.Dev.of X
ONE	10.9100	.3481	31.339 (.00000)	1.0000	.00000
LNLD	.696780E-01	.5397E-01	1.291 (.19672)	7.0768	.78314
LNLB	.564093	.5497E-01	10.262 (.00000)	5.3861	.65702
LNMA	.933355E-01	.4522E-01	2.064 (.03902)	1.6756	1.1360
LNIR	.136572E-01	.1817E-01	.751 (.45235)	5.2348	1.2367
T	-.140086	.4369E-01	-3.207 (.00134)	9.0000	4.9080
D	-.373867E-01	.5010E-01	-.746 (.45548)	.58824	.49306
X1	.257804E-01	.5495E-02	4.692 (.00000)	64.100	36.172
X2	-.128901E-01	.5053E-02	-2.551 (.01074)	48.661	27.556
X3	-.441860E-02	.4363E-02	-1.013 (.31114)	18.358	17.563
X4	.483346E-02	.2372E-02	2.037 (.04160)	49.681	30.842
TT	.102697E-02	.8931E-03	1.150 (.25018)	105.00	90.898

Method=D/F/P ; Maximum iterations = 50
 Convergence criteria: Gradient = .1000000E-03
 Function = .1000000E-05
 Parameters= .1000000E-04
 Starting values: 10.77 .6968E-01 .5641 .9334E-01 .1366E-01
 -.1401 -.3739E-01 .2578E-01 -.1289E-01 -.4419E-02
 .4833E-02 .1027E-02 1.072 .2401
 Log-Likelihood..... 65.992

Variable	Coefficient	Std. Error	T-ratio (Sig.Lvl)	Mean of X	Std.Dev.of X
ONE	11.2573	.3019	37.289 (.00000)	1.0000	.00000
LNLD	.609507E-01	.4948E-01	1.232 (.21805)	7.0768	.78314
LNLB	.544271	.5589E-01	9.738 (.00000)	5.3861	.65702
LNMA	.103426	.3915E-01	2.642 (.00825)	1.6756	1.1360
LNIR	.145027E-01	.2248E-01	.645 (.51879)	5.2348	1.2367
T	-.155578	.4734E-01	-3.286 (.00102)	9.0000	4.9080
D	-.348275E-01	.5181E-01	-.672 (.50141)	.58824	.49306
X1	.257441E-01	.6541E-02	3.936 (.00008)	64.100	36.172
X2	-.109544E-01	.6357E-02	-1.723 (.08485)	48.661	27.556
X3	-.494181E-02	.5455E-02	-.906 (.36495)	18.358	17.563
X4	.470202E-02	.3375E-02	1.393 (.16362)	49.681	30.842
TT	.122861E-02	.1043E-02	1.178 (.23875)	105.00	90.898
LAMBDA	1.35141	.4475	3.020 (.00253)		
SIGMA	.248783	.2337E-01	10.645 (.00000)		

Wald Test:
 Chi-Squared (1) = .451959

Significance Level = .501406

(Source: Estimated from LIMDEP Program.)

A—Table 1

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
GRASS PROVINCIAL PRODUCTS IN AGRICULTURE AT CONSTANT 1988 PRICES (UNIT: 1000 Baht)																	
SOURCE: GRASS PROVINCIAL PRODUCT, NESDB, 1975-1994 issues.																	
REGIONAL TOTAL	35694679	37112362	34021462	39596994	39969422	39527484	43798767	42548719	42879036	47638364	47047824	48018220	46891964	56829841	57417786	52543197	54353095
ZONE 6	8888597	9302643	6192002	8855541	8503685	9647886	11433328	10191136	11975450	13411947	13394440	12546241	11648828	15125704	14842487	12528149	13395294
16 Nakhon Si Thammaraj	4539759	4108373	2851436	4550503	4035705	4244744	5134972	4856602	5163586	5666477	5827405	5203800	5409311	6447871	6650691	5257472	5963357
17 Phetchabun	3510612	4137776	2777702	3062467	3288579	3524752	4595973	3854046	4998163	5825530	5808062	5469194	4481263	6662725	6138315	5464218	5410321
18 Uthai Thani	838227	1058494	562864	1242571	1179401	1878390	1702383	1480488	1813721	1919940	1758973	1873247	1758254	2015108	2053481	1806459	1961616
ZONE 8	5768008	7049647	6254553	7906137	7808282	8453508	9667606	10148623	9632904	10704516	11419239	11154528	10421315	14316561	15706296	13119373	14133827
21 Kamphaeng Phet	1781790	1685898	1198366	2180933	2065572	2356375	2896126	2906375	3095729	3797399	4148155	3983466	3621119	5067586	5664215	5182508	5725316
22 Tak	737128	751473	981912	886828	1233169	1316608	137817	1582381	938944	1353143	1238433	1513078	1288100	1043959	2019756	1631060	1681063
23 Phichit	1471116	2111958	1872868	2224025	1836439	2124167	2499910	2789503	2523125	2393452	2571628	2354217	2152943	3385521	2912084	2555322	2937399
24 Phitsanulok	1777973	2500318	2261407	2614351	2673103	2656357	3133753	2869764	3057106	3160522	3469023	3303767	3359153	4019495	5111241	3750483	3789249
ZONE 9	9536822	9015178	9009186	9697136	10012896	9614077	9826982	8755116	8278200	9410681	9740501	9553456	8796155	10869515	12025112	11360650	11333622
25 Nan	1529930	1436660	2088856	2202235	2318466	1469953	1322162	1337456	1355831	1509120	1449469	1448944	1354389	1575401	1839415	1796398	1748408
26 Phrae	1524485	1306595	1198948	1199306	1314492	1209763	1106331	1372260	1370160	1264959	1342226	1293565	1292987	1408985	1505915	1517915	1635475
27 Lampang	2198237	1886069	1815444	1906158	1546884	2596588	2483228	1837945	1594444	1851749	1738751	1936635	1979443	2133415	2325266	2064897	2038312
28 Sukhothai	2784730	2792312	2443052	2921615	3080880	2385222	2851474	2287857	2390105	2721195	3049824	2932144	2352398	3245493	3834417	3628177	3592387
29 Uttaradit	1499540	1593542	1462887	1557822	1752173	1952351	2063787	1999598	1567660	2063658	2100231	1936168	1816938	2506221	2520099	2353263	2319040
ZONE 10	11501251	11744894	12565721	13138481	13644557	11812013	12870851	13453844	13012482	14111220	12493644	14763995	16025666	16518061	14843891	15535025	15550352
30 Chiang Mai	4688636	4393701	4692622	5549856	5594325	5129294	4630912	4871891	4654526	5158560	4317891	5048612	5194674	5746039	5481856	5925439	6181745
31 Chiang Rai & Phayao	4262864	4295714	5117381	4929287	4883170	4255498	5776645	6229826	5739893	6392060	5731659	7337606	8357262	8177452	7049339	7147943	7010552
32 Mae Hong Son	798467	1305628	1007556	943740	1183162	871718	879419	786780	1112116	1125092	965843	1088823	931443	1097634	874453	887913	888289
33 Lamphun	1771085	1749851	1748162	1715298	1983908	1555503	1590875	1565347	1505947	1435503	1477251	1288954	1542287	1496936	1438243	1573730	1669766

A—Table 2

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
REGIONAL TOTAL	3761718	3839163	3962610	4063041	4159433	4252615	4542543	4385133	4424052	4459752	4491814	4519280	4542854	4563385	4580851	4595461	4603706
ZONE 6	735531	750254	764030	776847	788836	800038	810491	812117	813162	813696	812842	813311	812395	811050	809287	807159	804027
16 Nakhon Sawan	325286	323720	322199	320764	319417	318173	317037	312848	308844	305026	301389	298075	294803	291688	288662	285701	282590
17 Phetchabun	336557	351858	366229	379613	392156	403876	414814	420840	426162	430830	433967	438188	440922	443176	444954	446333	446954
18 Uthai Thani	73688	74676	75602	76470	77263	77989	78640	78429	78156	77840	77486	77098	76670	76186	75671	75125	74483
ZONE 8	746979	773780	800061	825862	851016	875522	899343	912282	926334	938549	950047	960495	970173	979020	987042	994286	1000609
21 Kamphaeng Phet	236528	257454	275587	292963	309802	325522	340710	351701	361900	371360	380139	388311	395863	402809	409172	414999	419953
22 Tak	109888	113408	116967	120546	124095	127597	131053	133107	135058	136920	138717	140304	141802	143202	144485	145673	146662
23 Phichit	159824	153792	148301	143320	138792	134669	130910	126203	121872	117869	114173	110664	107409	104366	101500	98827	96237
24 Phitsanulok	238739	249106	259206	269033	278527	287734	296670	302271	307504	312400	317018	321216	325099	328643	331885	334787	337157
ZONE 9	963015	976476	989427	1002048	1013509	1024633	1035195	1034844	1034036	1032852	1031424	1028321	1024863	1021062	1016892	1012379	1006776
25 Ran	132503	135217	137742	140060	142158	144055	145749	145800	145700	145467	145130	144498	143767	142953	142045	141058	139893
26 Phrae	172593	173442	174225	174907	175519	176017	176452	175055	173610	172142	170675	168943	167180	165384	163584	161727	159752
27 Lompang	283249	286841	290290	293575	296716	299706	302563	302249	301838	301357	300847	299907	298893	297810	296656	295436	293939
28 Sukhothai	197327	201273	205176	209019	212806	216521	220159	221501	222741	223906	224989	225699	226303	226804	227191	227463	227452
29 Uttaradit	177343	179703	181994	184487	186310	188334	190272	190239	190147	189980	189783	189274	188720	188111	187436	186695	185740
ZONE 10	1316193	1336673	1409092	1458284	1506072	1552422	1797514	1624890	1638520	1674655	1697501	1717153	1735423	1752253	1767630	1781637	1792894
30 Chiang Mai	523842	542241	559974	577025	593356	609042	624154	632317	639824	646824	653380	658918	664022	668593	672891	676678	679464
31 Chiang Rai & Phayao	569621	589740	618599	647091	675078	702481	729337	748068	765872	782811	799028	813549	827225	840010	851918	862962	872529
32 Mae Hong Son	58923	41736	64589	67431	70243	73009	75725	77596	79357	81027	82583	83954	85219	86370	87414	88351	89123
33 Lamphun	163807	164956	165930	166737	167395	167890	168298	166909	165467	163993	162510	160732	158957	157180	155407	153646	151778

Agriculture Labor (Unit:head) ; Save to file LABORSAG

Source1: DYNAMIC PROJECT IDRI 1961-1970

Source2: Office of Agricultural Economics 1971-1991

A—Table 3

HARVESTED AREA OF AGRICULTURAL CROPS (UNIT: RAI) INCLUDE: RICE, UPLAND CROPS, FRUIT TREES AND TREE CROPS, VEGETABLES AND PASTURE.
 SOURCES: PROVINCIAL STATISTICAL REPORT, REGIONAL STATISTICAL REPORT, AGRICULTURAL STATISTICAL YEAR BOOK.
 EXTRACTED FROM DISK 5, a:harv1, SAVE TO FILE a:land.

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
REGIONAL TOTAL	21233867	22216456	17387626	23667564	22824797	24773877	25737240	26338703	26402559	27643679	26734306	26287867	24539615	29112150	29299961	25360259	24549972
ZONE 6	7956307	8748921	5285656	8468250	8345058	8998158	9556695	9668614	9681220	10404039	9849210	9373425	8597286	10225277	10144765	8325199	8401862
Kaen Sawan	3897658	4143900	2497800	3722199	3508844	3683754	4120869	4063227	4071135	4555715	4268872	3976439	4191929	4583872	4556817	3332994	3591147
Chachabun	2897019	3390769	2118307	3433463	3397758	3559908	3901317	3763283	4233788	4521274	4153172	3936033	3094145	4199658	4081034	3715312	3653178
Uthai Thani	1161630	1214252	669549	1312588	1438456	1754496	1573499	1842104	1376297	1327050	1427166	1460953	1311212	1441747	1506914	1276893	1157537
ZONE 8	5303745	5588557	4881172	6562673	6092717	6715376	7397560	6751990	7375022	7468578	7791418	7431980	7155089	8927757	8829122	7138771	6714951
Kamphaeng Phet	1623387	1712731	1424627	2204483	2096278	2454208	2412474	1925050	2496846	2654144	3094391	2820477	2651246	3236803	3320046	2394257	1805251
Isan	307908	358405	438372	521730	581828	665003	694079	584756	503251	529040	552324	540155	538278	817878	994113	1081992	842024
Phichit	167085	1782875	1521188	1888711	1480420	1729305	2123654	2020658	2021914	1974081	1866715	1714566	1760120	2223430	1864840	1464185	1665942
Phitsanulok	1675365	1734546	1496985	1947749	1934191	1862860	2167353	2221526	2353011	2311313	2277988	2356782	2205445	2650446	2450123	2278337	2381734
ZONE 9	4376056	4134311	3505550	4557332	4358956	5003526	5003037	5154037	4829121	5241009	4954856	4906442	4400363	5324540	5541499	5073045	5046030
Nan	563441	585250	595572	645161	581168	801726	808280	920917	805294	839429	680064	682904	585616	792261	860332	767114	763386
Phrae	606847	570337	458696	599802	533875	669207	702274	547219	524656	544342	514202	558453	520948	604591	592961	559225	538552
Lampang	732740	813014	684733	710072	600349	859157	954251	832104	728995	809418	659327	718993	580079	807539	810051	674051	776416
Sukhothai	1740368	1429564	1145685	1740298	1758131	1364370	1379706	1433736	1679741	1848871	1986790	1832884	1623962	1856330	1986412	1882598	1795943
Uttaradit	732660	736146	620864	862799	885433	1309066	1158526	1424061	1090435	1199749	1094273	1107408	1089758	1263819	1291743	1190057	1170733
ZONE 10	3597759	3744667	3715248	4079309	4028066	4056817	3740958	4764062	4517196	4530053	4118822	4581820	4386877	4634576	4784575	4823244	4387129
Chiang Mai	1198189	1244205	1091913	1418505	1372629	1428366	1426650	1444267	1226495	1304469	1106033	1276941	1282189	1340519	1359951	1519678	1212889
Chiang Rai & Payao	1961104	1954332	2837537	2055046	2038906	2003157	1714359	2663906	2547753	2557557	2378757	2649802	2468231	2631741	2635195	2600633	2452190
Mae Hong Son	211959	220452	216025	241945	242149	242339	229141	251532	294490	271791	269012	253276	248741	265576	332345	282150	285008
Lamphun	326507	325678	369773	363813	374382	382955	370808	404357	448458	396236	385020	402601	387716	396940	457084	420783	457042

A—Table 4

PLANTED AREA OF RICE (Unit: rai)		1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
Year																			
REGION TOTAL		11639452	11972487	12847301	12560944	12670720	13448600	13946368	13614616	13429039	13925445	13793394	13856743	13445250	15131956	14926930	14456375	14680765	
Nakhon Sawan		2191090	2166072	2213392	2219208	2214608	2303977	2404586	2439616	2519599	2496257	2523084	2513275	2541581	2696622	2761623	2462018	2841138	
Phetchabun		783474	887705	803516	817224	829999	895119	951375	1040883	1254981	1227772	1168714	1227465	1000898	1241462	1092371	1123090	1164905	
Udhai Thani		613357	638512	561729	677714	653685	606641	713798	653743	536318	541196	648094	593050	577108	575163	620601	614138	694691	
Kamphaeng Phet		1126580	1140804	1108832	1353570	1364020	1491586	1515282	985471	1142008	1314475	1486118	1293766	1237791	1566377	1612613	1473956	1503960	
Tak		173204	183715	196813	205182	207582	238660	238755	149143	129753	133859	153883	141308	141508	276031	322979	243056	302062	
Phichit		143729	1544050	1578726	1622643	1622629	1697030	1713830	1838004	1687351	1660766	1533371	1700337	1530743	1966287	1611544	1807434	1848860	
Phitsanulok		982983	1013385	1004438	1059985	1075110	1161560	1163894	1307050	1418549	1442776	1310699	1406968	1546235	1676971	1725434	1753933	1371751	
Nan		138474	142677	138474	138474	142897	146445	148040	245906	197816	169940	184819	182981	142518	235818	291444	201799	183045	
Phrae		337516	336936	333699	337270	325809	338098	338704	215858	288838	249660	272340	278841	277730	279547	284214	263312	253327	
Lampang		482780	415237	430118	438400	415807	431323	485158	408215	418980	438999	436092	451793	440923	458925	450235	346108	523402	
Subhothai		759409	771679	802527	776040	774422	887219	941445	721372	857160	927538	925671	825984	846374	897207	835371	487238	459916	
Uttaradit		348653	355834	389706	408880	430602	578574	528616	564741	367235	566787	520621	558424	491317	531073	537481	487238	459916	
Chiang Mai		699496	721130	697013	720416	711005	723482	720040	656201	576624	700215	596737	614890	578541	696019	619527	786642	734231	
Phayao		0	0	476231	477450	536226	563476	673532	663061	508815	609843	558601	561541	563631	578145	520316	525027	507641	
Chiang Rai		1395226	1436377	1004315	1004614	1058511	1073299	1101801	1402752	1159438	1135952	1148144	1207488	1056196	1185245	1225934	1201453	1087494	
Mae Hong Son		83061	85630	85711	86027	87787	93649	89376	79307	93210	77369	78037	85442	78756	88679	132180	121533	80051	
Lumphun		204422	210744	216061	217847	217021	218462	218056	253293	275364	236041	248369	213198	215888	228297	255327	200267	24972	
HARVESTED AREA OF RICE (Unit: rai)																			
Year																			
REGION TOTAL		10959221	11569460	9160581	11821550	10339005	11483016	12977041	12867162	13188875	13428461	13470903	12673857	12918647	14780196	14488260	1204161	1264711	
Nakhon Sawan		1967455	2071005	1142216	2056002	1743922	1895021	2317631	2240609	2324037	2334980	2374561	2151046	2520522	2697903	2609645	1745685	2364632	
Phetchabun		716029	753715	629038	671447	629504	743248	910224	929535	1216223	1211449	1149740	1014815	937041	1175875	1092228	929261	1063013	
Udhai Thani		606916	637912	128020	649964	357673	546997	552794	612478	521377	394609	638195	571860	564382	514650	608714	524748	551141	
Kamphaeng Phet		1071763	1128172	807518	1302296	1176512	1448035	1402799	940649	1097579	1250247	1480547	1148134	1301458	1549534	1589500	1590622	1223317	
Tak		173535	182668	189416	203931	206898	237921	235462	145293	124269	129357	153142	136681	138295	214931	321612	243056	291029	
Paichit		441698	1489154	1232410	1552472	1060184	1365377	1654439	1659925	1661676	1637015	1533371	1421608	1497391	1888452	1497643	1157731	1427922	
Phitsanulok		965105	953795	802790	1018241	931823	845884	1141250	1226124	1285873	1421794	1300565	1318007	1456336	1622498	1628506	1252824	1328182	
Nan		155543	142677	128522	131809	101446	141459	140276	245401	197816	165940	178158	173055	140774	235434	293411	201625	191784	
Phrae		336800	336936	331050	336448	298739	337538	338664	213697	287605	249660	272340	278252	277730	279547	284214	262390	253327	
Lampang		381674	401762	423264	438380	300895	393848	494962	406940	416044	438556	396558	451236	281727	457441	450060	340984	477929	
Subhothai		608897	638858	640590	640291	655231	648895	518852	705154	793265	915752	921705	786019	801027	820677	832293	826889	711513	
Uttaradit		338617	352465	349970	354327	383743	458828	485187	557612	364923	563442	515281	556377	499933	531073	533874	483353	447704	
Chiang Mai		684179	720188	600984	714392	703478	693553	678312	641458	569699	681779	542675	613084	638052	674950	618833	775308	551550	
Phayao		0	0	475347	471243	443718	526955	653532	647479	804495	601894	557435	569521	545727	556120	518663	508135	475589	
Chiang Rai		1348958	1419956	980440	981072	1041531	891590	1062465	138272	1158650	1123352	1131970	1200859	1045916	1071595	1226318	1181411	1041615	
Mae Hong Son		81044	85309	85395	84017	86587	90423	85907	79307	94492	78865	78520	82280	78017	87290	131916	100548	81051	
Lumphun		157910	209888	213611	215228	217021	217434	216285	230229	277852	234770	248140	209832	205329	227166	253210	209591	241833	

Source: Provincial Statistical Report, 95-89 from Regional Statistical Report of Region: Northern Region

A—Table 5

Accumulate Irrigation Area (Unit:raia) ; Save to file IRRISA
Source :DYNAMIC PROJECT TDRI; File IRRAREA.FMT[70*27]
Source :Agricultural Statistics of Thailand , Center for Agricultural Statistics, Office of Agricultural Economics; Crop Year 1988-1991

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
REGIONAL TOTAL	2215200	2341200	2601250	2864800	3169680	3424710	3848590	4231660	4684830	5071710	5584430	6104077	6317884	6800233	6772759	6922107	7083217
ZONE 6	198500	244000	320900	404000	505000	580200	723700	791000	865450	933150	1029150	1458050	1489150	1564750	1597350	1643763	1662963
16 Nakhon Sawan	143000	188500	239500	279500	309500	329500	369500	408500	424300	457300	500800	892600	907600	906100	871550	881163	890163
17 Phetchaburi	32000	32000	50000	54600	82600	107600	113100	124100	146600	160200	167350	173850	177650	187250	202150	202150	206050
18 Uthai Thani	23500	23500	31400	69900	112900	143100	241100	258400	294550	315650	361000	391600	403900	471400	523650	560450	566750
ZONE 8	404200	440700	548200	674200	746400	884000	965800	1159110	1403060	1581950	1748330	1804727	1848627	1954377	1958027	1886027	1925577
21 Kamphaeng Phet	10000	41500	41500	56500	69000	101800	149800	196800	224200	268300	386800	399800	407600	417600	419100	423600	435600
22 Tak	47700	51700	54700	61700	64000	69900	77800	87300	100800	108200	112200	124600	131700	143300	146100	150100	151050
23 Phichit	79000	80000	174500	244500	260500	283500	304500	343610	542610	665500	693000	706000	727000	843600	855600	874600	899600
24 Phitsanulok	267500	287500	277500	311500	352900	428800	433700	531400	535450	539950	556530	574327	582327	549877	437227	437727	439327
ZONE 9	504000	531800	582370	616478	648150	694680	837210	877710	957460	1063700	1094700	1138130	1193532	1275582	1255583	1287071	1338471
25 Nan	103850	103850	118070	129970	129540	131370	139570	153970	158520	173520	174020	174020	177720	208520	214391	219591	230441
26 Phrae	224000	230500	238000	236000	245000	254000	285720	293220	311720	322220	350720	364320	383570	397020	381020	388820	389620
27 Lampang	90800	112100	114600	134700	152200	176200	228900	240200	254200	268200	308400	316970	329770	335770	342220	348020	358270
28 Sakonchai	39000	39000	63800	66600	66910	77310	133910	141910	170760	185650	192950	210610	227262	238062	219262	226850	258350
29 Uttaradit	46350	46350	48700	53200	54500	55800	57110	62810	66810	69110	69110	72210	73210	96210	98690	101790	101790
ZONE 10	1108500	1124700	1149780	1170130	1278130	1268830	1321880	1403840	1458860	1552910	1632250	1703170	1786495	2005524	2061799	2105246	2156206
30 Chiang Mai	714600	720300	744950	759050	772750	759350	772920	808910	829340	851560	899710	921262	982347	1131816	1132052	1143449	1178399
31 Chiang Rai & Phayao	180000	180000	180430	181530	260030	273330	311030	352530	378130	44210	47660	501610	517230	532280	589920	607270	619570
32 Mae Hong Son	0	10500	10500	13250	16550	19250	24030	27600	32090	37240	41580	43383	43733	48783	50654	53154	54154
33 Lamphun	213900	213900	213900	216300	220800	213900	213900	214800	219300	221800	224300	236915	243185	292645	295173	301373	304083

A—Table 6

Agricultural Tractors (Unit: unit); Include Big Tractors, Four-wheel Tractors and Two-wheel Walking Tractors. Save to file A:TRAC
 Source 1: Office of Agricultural Economics 1975-1991
 Source 2: Agricultural Inter-censal Survey, 1978, 1983, 1988, National Statistical Office.

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
REGIONAL TOTAL	33644	43152	41293	58818	72458	88653	94028	125891	145409	132076	151241	174923	206109	240191	280404	331561	388043
ZONE 6																	
16 Nakhon Sawan	9282	11974	9295	13683	16715	21117	22423	29118	33218	30442	35270	39689	46708	54606	63843	74648	87285
17 Phetchabun	5290	6834	5603	8525	10407	12052	12271	15636	17641	16132	17872	20691	24252	28256	32934	38400	44787
18 Uthai Thani	1768	2302	2011	2685	3127	6458	7051	9447	11048	10302	12923	13852	16477	19441	22910	26973	31733
	2224	2838	1661	2553	3181	2607	3101	4035	4529	4008	4475	5146	5979	6909	7999	9275	10765
ZONE 8																	
21 Kamphaeng Phet	10188	13212	11507	19074	23735	32640	32110	43675	50881	45962	51518	61081	72309	83941	97755	118130	138509
22 Tak	6470	8252	4735	6308	7905	11465	11587	15839	18335	16417	18444	21029	24918	28287	32410	41419	48467
23 Phichit	300	534	625	753	841	1059	1154	1198	1412	1281	1536	1756	2083	2451	2882	3388	3982
24 Phitsanulok	842	1088	2238	2962	3677	6399	6133	8480	9973	9116	10598	12431	14752	17368	20436	24035	28257
	2576	3338	3909	9051	11312	13717	13236	18158	21161	19148	20940	25865	30556	35835	42027	49288	57803
ZONE 9																	
25 Nan	8996	11154	10835	13927	16822	20887	21784	29127	33567	30563	35634	40520	47590	55545	64869	75795	88601
26 Phrae	352	906	977	1000	1016	1191	1144	1213	1258	1334	1390	1436	1516	1606	1711	1836	1979
27 Lampang	800	882	934	1098	1112	1255	1256	1757	2082	1909	2433	2627	3126	3689	4349	5124	6033
28 Sakonbohai	570	738	1433	1892	2330	2758	3070	4120	4773	4364	5018	5827	6865	8078	9476	11111	13030
29 Uttaradit	4756	6084	4497	5949	7371	8800	9887	13216	15198	13730	16231	18190	21396	24999	29221	34165	39959
	1968	2544	2994	3988	4993	6083	6427	8821	10256	9226	10562	12440	14667	17173	20112	23559	27600
ZONE 10																	
30 Chiang Mai	5178	6812	9656	12134	15186	14809	17731	23971	27743	25109	28819	33633	39502	46899	53937	63008	73648
31 Chiang Rai & Phayao	1713	2544	4261	5695	7155	5281	6527	8844	10141	8984	9607	11925	13957	16235	18909	22041	25716
32 Mae Hong Son	1540	1976	2766	3496	4605	5633	7603	10825	12887	11746	14713	16309	19411	22906	27011	31830	37491
33 Lamphun	1098	1128	1285	1433	1513	1559	1592	1619	1636	1642	1750	1769	1881	2006	2247	2406	2586
	822	1164	1344	1520	1913	2336	1989	2683	3079	2737	2749	3630	4253	4952	5770	6731	7955

A—Table 7

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
OUTPUT/LABOR RATIO (GAP AMOUNT OF PER AGRICULTURAL LABOR: BAHIT/LABOR)																	
NORTHERN REGION																	
ZONE 6																	
Nakhon Sawan	12085	12399	8104	11399	10780	12059	14107	12549	14727	16483	16479	15426	14339	18650	18340	15521	16586
Phetchabun	13956	12691	8850	14186	12635	13341	16197	15524	16719	18577	19335	17461	18349	22105	23040	18402	21103
Uthai Thani	10431	11760	7585	8067	8386	8727	11080	9158	11728	13522	13384	12481	10163	15034	13795	12242	12105
	11375	14148	7445	16249	15265	24085	21648	18877	23206	24665	22701	24297	22933	26450	27137	24046	26336
ZONE 8																	
Samphaeng Phet	7722	9111	7818	9573	9175	9655	10750	11112	10377	11405	12020	11613	10742	14623	15912	13195	14134
Tak	7470	5548	4348	7444	6672	7239	7913	8264	8554	10226	10891	10258	9147	12581	13843	12488	13633
Phichit	6708	6626	8395	7357	9937	10318	10208	11893	6937	9883	8928	10784	9084	12877	13972	11197	11468
Phitsanulok	9205	13733	12629	15518	13232	15773	19096	22103	20703	20306	22524	21274	20044	32439	28690	25857	30523
	7447	10037	8493	9718	9597	9232	10563	9494	9942	10117	10943	10285	10333	12231	15461	11203	11239
ZONE 9																	
Nan	9903	9232	9105	9677	9879	9383	9493	8460	8006	9111	9444	9290	8583	10645	11825	11222	11257
Phrae	11546	10625	15165	15724	16309	10204	9071	9173	9306	10374	9987	10027	9421	11020	12950	12735	12498
Lampang	8633	7533	6882	6342	7489	6873	6270	7839	7892	7348	7864	7692	7734	8519	9207	9386	10238
Sukhothai	7761	5575	6254	6493	5213	8664	8207	6081	5282	6145	5979	6457	6623	7164	7838	6989	6934
Uttaradit	14112	13873	11907	13978	14477	11016	12952	9968	10730	12153	13555	12991	10395	14310	16878	15951	15794
	8456	8668	8036	8444	9405	10367	10847	10511	8244	10863	11066	10229	9628	13323	13445	12605	12485
ZONE 10																	
Chiang Mai	8738	8774	8918	9009	9060	7609	7160	8260	7884	8426	7360	8598	9234	9427	8398	8720	8673
Chiang Rai & Payao	8913	8103	8380	9618	9428	8422	5619	7705	7275	7975	6607	7662	7823	8593	8147	8757	9098
Mae Hong Son	7484	7284	8273	7618	7233	6058	7923	8328	7495	8166	7176	9019	10103	9735	8275	8283	8035
Lampang	13551	31283	15600	13996	16844	11940	11494	10139	14014	13885	11693	12969	10930	12709	10804	10050	7723
	10812	10608	10536	10287	11852	9265	9453	9378	9101	9753	9090	8013	9703	9524	9255	10243	11001

A--Table 8

OUTPUT/HARVESTED AREA RATIO (GAP AMOUNT OF PER UNIT OF HARVESTED AREA: BART/RAI)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
NORTHERN REGION	1681	1670	1957	1673	1751	1596	1702	1615	1624	1723	1760	1827	1911	1952	1960	2072	2214
ZONE 6	1117	1063	1171	1046	1019	1072	1192	1054	1237	1289	1360	1338	1355	1479	1463	1505	1587
Nakhon Sawan	1165	991	1142	1223	1150	1152	1246	1195	1268	1244	1365	1309	1290	1407	1460	1577	1661
Phetchabun	1212	1220	1311	892	968	990	1178	1024	1181	1288	1398	1390	1448	1586	1504	1471	1481
Uthai Thani	722	870	841	947	820	1071	1082	804	1318	1447	1232	1282	1341	1398	1363	1415	1695
ZONE 8	1088	1261	1281	1205	1282	1259	1307	1503	1303	1433	1466	1501	1456	1604	1779	1838	2105
Kamphaeng Phet	1098	984	841	989	985	960	1118	1510	1240	1431	1338	1412	1366	1586	1706	2165	3171
Tak	2394	2097	2240	1700	2119	1968	1927	2707	1862	2558	2242	2801	2393	2255	2831	1628	1997
Phichit	867	1165	1231	1178	1240	1228	1177	1380	1248	1212	1378	1373	1223	1523	1562	1745	1742
Phitsanulok	1061	1441	1471	1342	1382	1426	1446	1292	1299	1367	1523	1402	1523	1517	1929	1646	1591
ZONE 9	2179	2181	2570	2128	2297	1921	1964	1699	1714	1796	1966	1949	1999	2041	2170	2239	2246
Nan	2715	2455	3507	3413	3989	1833	1636	1452	1684	1798	2131	2122	2313	1988	2138	2342	2290
Phrae	2512	2291	2614	1852	2462	1808	1575	2526	2612	2324	2513	2327	2482	2330	2540	2714	3037
Lampang	3000	2320	2651	2684	2577	3022	2602	2209	2187	2288	2727	2694	3412	2642	2871	3063	2625
Sukhothai	1600	1953	2132	1679	1752	1748	2067	1540	1423	1472	1535	1600	1449	1748	1930	1927	1999
Uttaradit	2047	2165	2356	1806	1979	1492	1781	1404	1438	1720	1919	1748	1667	1983	1951	1977	1981
ZONE 10	3197	3136	3382	3221	3387	2912	3441	2824	2881	3115	3019	3222	3653	3564	3102	3221	3545
Chiang Mai	3897	3531	4298	3912	4076	3591	3246	3373	3795	3955	3903	3954	4051	4286	4031	3899	5097
Chiang Rai & Payao	2291	2198	2512	2399	2395	2124	3371	2339	2253	2499	2410	2770	3386	3107	2675	2749	2859
Mae Hong Son	3767	5923	4664	3901	4886	3597	3799	3128	3776	4140	3590	4299	3745	4136	2631	3147	2597
Lamphun	5424	5373	4728	4715	5299	4062	4290	3871	3358	3623	3837	3202	3978	3771	3147	3740	3653

A—Table 9

HARVESTED AREA / LABOR RATIO (RAI/LABOR)	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
NORTHERN REGION	5.64	5.79	4.39	5.83	5.49	5.83	5.67	6.01	5.97	6.20	5.95	5.82	5.40	6.38	6.40	5.52	5.33
ZONE 6	10.82	11.66	6.92	10.90	10.58	11.25	11.84	11.91	11.91	12.79	12.12	11.53	10.58	12.61	12.54	10.31	10.45
Nakhon Sawan	11.98	12.80	7.75	11.60	10.99	11.58	13.00	12.99	13.18	14.94	14.16	13.34	14.22	15.71	15.79	11.67	12.71
Pherchebun	8.61	9.64	5.78	9.04	8.66	8.81	9.40	8.94	9.93	10.49	9.57	8.98	7.02	9.48	9.17	8.32	8.17
Uthai Thani	15.76	16.26	8.86	17.16	18.62	22.50	20.01	23.49	17.61	17.05	18.42	18.95	17.10	18.92	19.91	17.00	15.54
ZONE 8	7.10	7.22	6.10	7.95	7.16	7.67	8.23	7.39	7.96	7.96	8.20	7.74	7.38	9.12	8.95	7.18	6.71
Rampheeng Phet	6.81	6.65	5.17	7.52	6.77	7.54	7.08	5.47	6.90	7.15	8.14	7.26	6.70	8.03	8.11	5.77	4.30
Tak	2.80	3.16	3.75	4.33	4.69	5.24	5.30	4.39	3.73	3.86	3.98	3.85	3.80	5.71	6.88	6.88	5.74
Phichit	10.62	11.59	10.26	13.18	10.67	12.84	16.22	16.01	16.59	16.75	16.35	15.49	16.39	21.30	18.37	14.62	17.52
Phitsanulok	7.02	6.96	5.78	7.24	6.94	6.47	7.31	7.35	7.65	7.40	7.19	7.34	6.78	8.06	7.99	6.81	7.06
ZONE 9	4.54	4.23	3.54	4.55	4.30	4.88	4.83	4.98	4.67	5.07	4.80	4.77	4.29	5.21	5.45	5.01	5.01
Nar	4.25	4.33	4.32	4.61	4.09	5.57	5.55	6.32	5.53	5.77	4.69	4.73	4.07	5.54	6.06	5.44	5.46
Phrae	3.52	3.29	2.63	3.42	3.04	3.80	3.98	3.10	3.02	3.16	3.13	3.31	3.12	3.66	3.63	3.46	3.37
Lampang	2.59	2.83	2.36	2.42	2.02	2.87	3.15	2.75	2.42	2.69	2.19	2.40	1.94	2.71	2.73	2.28	2.64
Sukhothai	8.82	7.18	5.58	8.33	8.26	6.30	6.27	6.47	7.54	8.25	8.83	8.12	7.18	8.18	8.74	8.28	7.90
Uttaradit	4.13	4.10	3.41	4.68	4.75	6.95	6.09	7.49	5.73	6.32	5.77	5.85	5.77	6.72	6.89	6.37	6.30
ZONE 10	2.73	2.80	2.64	2.80	2.67	2.61	2.08	2.93	2.74	2.71	2.44	2.67	2.53	2.64	2.71	2.71	2.45
Chiang Mai	2.29	2.29	1.95	2.46	2.31	2.35	1.73	2.28	1.92	2.02	1.69	1.94	1.93	2.00	2.02	2.25	1.79
Chiang Rai & Payao	3.27	3.31	3.29	3.18	3.02	2.85	2.35	3.56	3.33	3.27	2.98	3.26	2.98	3.13	3.09	3.01	2.81
Mae Hong Son	3.50	5.28	3.34	3.59	3.45	3.32	3.03	3.24	3.71	3.35	3.26	3.02	2.92	3.07	3.80	3.19	2.97
Lamphun	1.99	1.97	2.23	2.18	2.24	2.28	2.20	2.42	2.71	2.42	2.37	2.50	2.44	2.53	2.94	2.74	3.01

A-Table 10

OUTPUT/LABOR RATIO (GAP AMOUNT OF PER AGRICULTURAL LABOR: BHMT/LABOR)																	
YEAR	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
NORTHERN REGION	9469	9667	8586	9746	9609	9295	9642	9703	9692	10682	10474	10625	10322	12453	12534	11434	11806
ZONE 6	12895	12399	8104	11399	10780	12059	14107	12549	14727	16483	16479	15426	14339	18650	18340	15521	16586
ZONE 8	7722	9111	7818	9573	9175	9655	10750	11112	10377	11405	12020	11613	10742	14623	15912	13195	14134
ZONE 9	9903	9232	9105	9677	9879	9383	9493	8460	8006	9111	9444	9290	8583	10645	11825	11222	11257
ZONE 10	8738	8774	8918	9009	9060	7609	7160	8280	7884	8426	7360	8598	9234	9427	8398	8720	8673
PLAN PERIOD AVG 3rd (75-76)					4th (77-81)					5th (82-86)							
NORTHERN REGION	9578				9375					18235							
ZONE 6	12242				11290					15133							
ZONE 8	8416				9394					11306							
ZONE 9	9568				9508					8862							
ZONE 10	8756				8351					8110							
OUTPUT/HARVESTED AREA RATIO (GAP AMOUNT OF PER UNIT OF HARVESTED AREA: BHMT/HA)																	
YEAR	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
NORTHERN REGION	1681	1670	1957	1673	1751	1596	1702	1615	1624	1723	1760	1827	1911	1952	1960	2072	2214
ZONE 6	1117	1063	1171	1046	1019	1072	1192	1054	1237	1289	1360	1338	1355	1479	1463	1595	1587
ZONE 8	1098	1251	1381	1205	1282	1259	1307	1503	1303	1433	1466	1501	1456	1604	1779	1838	2105
ZONE 9	2179	2181	2570	2128	2297	1921	1964	1699	1714	1796	1966	1949	1999	2041	2170	2239	2246
ZONE 10	3197	3136	3382	3221	3387	2912	3441	2824	2861	3115	3019	3222	3653	3564	3102	3221	3545
PLAN PERIOD AVG 3rd (75-76)					4th (77-81)					5th (82-86)							
NORTHERN REGION	1676				1736					1710							
ZONE 5	1090				1100					1256							
ZONE 8	1174				1267					1441							
ZONE 9	2180				2176					1825							
ZONE 10	3167				3268					3012							
HARVESTED AREA / LABOR RATIO (HA/LABOR)																	
YEAR	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
NORTHERN REGION	5.64	5.79	4.39	5.83	5.49	5.83	5.67	6.01	5.97	6.20	5.95	5.82	5.40	6.38	6.40	5.52	5.33
ZONE 6	10.82	11.66	6.92	10.90	10.58	11.25	11.84	11.91	11.91	12.79	12.12	11.53	10.58	12.61	12.54	10.31	10.45
ZONE 8	7.10	7.22	6.10	7.95	7.16	7.67	8.23	7.39	7.96	7.96	8.20	7.74	7.38	9.12	8.95	7.18	6.71
ZONE 9	4.54	4.23	3.54	4.55	4.30	4.88	4.83	4.98	4.67	5.07	4.80	4.77	4.29	5.21	5.45	5.01	5.01
ZONE 10	2.73	2.80	2.84	2.80	2.67	2.61	2.08	2.93	2.74	2.71	2.44	2.67	2.53	2.64	2.71	2.71	2.45
PLAN PERIOD AVG 3rd (75-76)					4th (77-81)					5th (82-86)							
NORTHERN REGION	5.72				5.44					5.99							
ZONE 6	11.24				10.30					12.05							
ZONE 8	7.16				7.42					7.85							
ZONE 9	4.39				4.42					4.96							
ZONE 10	2.77				2.56					2.70							

A—Table 11

	OUTPUT-TRACTOR RATIO (1000 Baht/Unit)																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
REGIONAL TOTAL	1061	860	824	673	552	446	466	338	295	361	311	275	228	237	205	158	140
ZONE 6																	
16 Nakhon Sawan	958	777	666	647	509	457	510	350	361	441	380	316	249	277	232	168	153
17 Phetchabun	858	601	509	534	388	352	418	311	293	351	326	252	223	228	202	137	133
18 Uthai Thani	1986	1797	1381	1176	1052	546	652	408	452	565	449	395	272	343	268	203	179
	377	372	335	487	371	721	549	367	400	479	393	364	294	292	257	195	182
ZONE 8																	
21 Kamphaeng Phet	566	534	544	414	329	259	301	232	189	233	222	183	144	171	161	111	102
22 Tak	275	204	253	346	261	206	233	183	169	231	224	189	145	179	175	125	118
23 Phichit	2457	1407	1571	1178	1466	1243	1159	1321	664	1056	806	862	618	752	700	481	422
24 Phitsanulok	1747	1941	837	751	499	332	408	329	253	263	243	189	146	195	142	106	104
	650	745	563	289	236	194	237	158	144	185	166	128	110	112	122	76	66
ZONE 9																	
25 Nuea	1060	908	831	696	595	479	451	301	247	308	273	236	185	196	185	150	128
26 Phrae	1735	1585	2138	2202	2282	1234	1156	1103	1078	1131	1043	1099	893	961	1075	978	883
27 Lampang	1906	1481	1284	1010	1182	964	881	781	658	663	552	495	414	382	346	296	271
28 Sukhothai	3857	2556	1267	1007	664	941	809	446	334	424	358	332	288	264	245	186	156
29 Uttaradit	586	459	543	491	418	271	288	167	157	198	188	161	110	130	131	106	90
	754	626	489	391	351	321	321	227	153	224	199	156	124	146	125	100	84
ZONE 10																	
30 Chiang Mai	2221	1724	1301	1083	898	798	727	561	469	562	434	439	406	358	275	247	211
31 Chiang Rai & Phayao	2718	1727	1101	976	782	971	710	551	459	574	449	423	372	354	290	269	249
32 Mae Hong Son	2768	2174	1850	1410	1060	755	760	575	445	544	390	450	431	357	261	225	187
33 Lamphun	727	1157	784	659	782	559	547	486	600	685	552	616	495	547	389	369	266
	2155	1553	1301	1128	1037	666	800	583	489	524	537	355	363	302	248	234	213

A—Table 12

HARVESTED AREA - TRACTOR RATIO (Rai/Unit)	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
REGIONAL TOTAL	631	515	421	402	315	279	274	209	182	209	177	150	119	121	104	76	63
ZONE 6																	
Kamnon Sawan	657	731	569	619	499	426	428	332	291	342	279	236	184	187	159	112	96
Phetchabun	737	606	446	437	337	306	336	260	231	282	239	192	173	162	138	87	60
Uthai Thani	1639	1473	1053	1318	1087	551	553	398	383	439	321	284	188	216	178	138	115
	522	428	398	514	452	673	507	457	304	331	319	284	219	209	188	138	108
ZONE 8																	
Kamphaeng Phet	521	423	424	344	257	206	230	155	145	162	151	122	99	106	90	60	48
Tak	251	208	301	349	265	214	208	122	136	162	168	134	106	114	102	58	37
Phichit	1026	671	701	693	692	632	601	488	356	413	360	308	258	334	345	296	211
Phitsanulok	2016	1539	680	638	403	270	346	238	203	217	176	138	119	128	91	61	60
	650	528	383	215	171	136	164	122	111	121	109	91	72	74	63	46	41
ZONE 9																	
Nan	486	371	324	327	259	249	230	177	144	171	139	121	92	96	85	67	57
Phrae	639	646	610	645	572	673	707	759	640	629	489	476	386	493	503	418	386
Lampang	759	647	491	546	480	533	559	309	252	285	220	213	167	164	136	109	89
Sukhothai	1286	1102	478	375	258	312	311	282	153	185	131	123	84	100	85	51	60
Uttaradit	366	235	255	293	239	155	140	108	111	135	122	101	76	74	68	55	45
	369	289	207	216	177	215	180	161	106	130	104	89	74	74	64	51	42
ZONE 10																	
Chiang Mai	695	550	385	336	265	274	211	199	163	180	144	136	111	101	89	77	60
Chiang Rai & Payao	697	489	256	250	192	270	219	163	121	145	115	107	92	83	72	69	47
Mae Hong Son	1209	989	737	588	443	356	225	246	198	218	162	162	127	115	98	82	55
Lamphun	193	195	168	169	160	155	144	155	180	166	154	143	132	132	148	117	102
	397	280	275	239	196	164	186	151	146	145	140	111	91	80	79	63	54

A—Table 13

LABOR - TRACTOR RATIO (Person/Unit)	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
	REGIONAL TOTAL	89	96	69	57	48	48	35	30	34	30	26	22	19	16	14	12	
ZONE 6																		
16 Nakhon Sawan	79	63	82	57	47	38	36	28	24	27	23	20	17	15	13	11	9	
17 Phetchabun	61	47	58	39	31	26	26	20	18	19	17	14	12	10	9	7	6	
18 Uthai Thani	190	153	182	146	125	63	59	45	39	42	34	32	27	23	19	17	14	
	33	26	45	30	24	30	25	19	17	19	17	15	13	11	9	8	7	
ZONE 8																		
21 Kamphaeng Phet	73	59	70	43	36	27	28	21	18	20	18	16	13	12	10	8	7	
22 Tak	37	31	58	46	39	28	29	22	20	23	21	18	16	14	13	10	9	
23 Phichit	366	212	187	160	148	120	114	111	96	107	90	80	68	58	50	43	37	
24 Phitsanulok	190	141	66	48	38	21	21	15	12	13	11	9	7	6	5	4	3	
	93	75	66	30	25	21	22	17	15	16	15	12	11	9	8	7	6	
ZONE 9																		
25 Mah	107	88	91	72	60	51	48	36	31	34	29	25	22	18	16	13	11	
26 Phrae	150	149	141	140	140	121	127	120	116	109	104	101	95	89	83	77	71	
27 Lampang	216	197	187	159	158	140	140	100	83	90	70	64	53	45	38	32	26	
28 Sukhothai	497	389	203	155	127	109	99	73	63	69	60	51	43	37	31	27	23	
29 Uttaradit	41	33	46	35	29	25	22	17	15	16	14	12	11	9	8	7	6	
	89	71	61	46	37	31	30	22	19	21	18	15	13	11	9	8	7	
ZONE 10																		
30 Chiang Mai	254	197	146	120	99	105	101	68	59	67	59	51	44	38	33	28	24	
31 Chiang Rai & Phayao	305	213	131	101	83	115	126	71	63	72	68	55	48	41	36	31	26	
32 Mae Hong Son	370	298	224	185	147	125	96	69	59	67	54	50	43	37	32	27	23	
33 Lamphun	54	37	50	47	46	47	48	48	49	49	47	47	45	43	39	37	34	
	199	142	123	110	88	72	85	62	54	60	59	44	37	32	27	23	19	

A--Table 14

Accumulated Irrigation Area - Harvested Area Ratio (%)		1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
REGIONAL TOTAL		0.1043	0.1054	0.1496	0.1210	0.1389	0.1382	0.1495	0.1607	0.1774	0.1835	0.2059	0.2322	0.2575	0.2336	0.2312	0.2730	0.2865
ZONE 6																		
16 Nakhon Si Thammarat		0.0249	0.0279	0.0607	0.0477	0.0605	0.0645	0.0754	0.0818	0.0894	0.0897	0.1045	0.1556	0.1732	0.1530	0.1575	0.1974	0.1979
17 Phetchabun		0.0367	0.0455	0.0959	0.0751	0.0882	0.0894	0.0897	0.1005	0.1042	0.1094	0.1173	0.2245	0.2165	0.1977	0.1913	0.2644	0.2479
18 Uthai Thani		0.0110	0.0094	0.0236	0.0159	0.0243	0.0302	0.0290	0.0330	0.0346	0.0354	0.0403	0.0442	0.0574	0.0446	0.0495	0.0544	0.0564
ZONE 8																		
21 Kamphaeng Phet		0.0202	0.0194	0.0469	0.0533	0.0785	0.0816	0.1532	0.1403	0.2140	0.2379	0.2529	0.2680	0.3080	0.3270	0.3475	0.4389	0.4896
22 Tak		0.0762	0.0789	0.1123	0.1027	0.1225	0.1316	0.1306	0.1717	0.1902	0.2118	0.2244	0.2428	0.2584	0.2189	0.2104	0.2642	0.2868
23 Phichit		0.0062	0.0242	0.0291	0.0256	0.0329	0.0415	0.0621	0.1022	0.0898	0.1011	0.1250	0.1417	0.1537	0.1290	0.1262	0.1789	0.2413
24 Phitsanulok		0.1549	0.1443	0.1248	0.1183	0.1100	0.1045	0.1121	0.1493	0.2003	0.2045	0.2031	0.2307	0.2447	0.1752	0.1470	0.1498	0.1794
ZONE 9																		
25 Nua		0.0466	0.0449	0.1147	0.1295	0.1760	0.1639	0.1434	0.1700	0.2684	0.3371	0.3712	0.4118	0.4130	0.3794	0.4588	0.5973	0.5336
26 Phrae		0.1597	0.1542	0.1854	0.1599	0.1825	0.2302	0.2001	0.2392	0.2276	0.2336	0.2442	0.2437	0.2640	0.2075	0.1650	0.1921	0.1845
27 Lampang		0.1152	0.1286	0.1661	0.1353	0.1487	0.1388	0.1673	0.1703	0.1983	0.1915	0.2209	0.2322	0.2712	0.2396	0.2266	0.2537	0.2653
28 Sukhothai		0.1813	0.1774	0.1982	0.1922	0.2229	0.1639	0.1653	0.1516	0.1912	0.1888	0.2552	0.2548	0.3035	0.2632	0.2492	0.2863	0.3019
29 Uttaradit		0.3651	0.4041	0.5189	0.3973	0.4589	0.3796	0.4068	0.5398	0.5941	0.5919	0.6565	0.6524	0.7363	0.6567	0.6426	0.6953	0.7235
ZONE 10																		
30 Chiang Mai		0.1239	0.1379	0.1874	0.1897	0.2535	0.2051	0.2378	0.2887	0.3487	0.3313	0.4676	0.4409	0.5685	0.4158	0.4225	0.5163	0.4614
31 Chiang Rai & Ph		0.0224	0.0273	0.0550	0.0383	0.0581	0.0587	0.0971	0.0990	0.1017	0.1005	0.0971	0.1149	0.1399	0.1282	0.1104	0.1216	0.1438
32 Mae Hong Son		0.0633	0.0630	0.0784	0.0617	0.0616	0.0426	0.0493	0.0441	0.0613	0.0576	0.0632	0.0652	0.0690	0.0761	0.0764	0.0855	0.0869
33 Lamphun		0.3061	0.3003	0.3095	0.2868	0.3153	0.3120	0.3534	0.2947	0.3230	0.3428	0.3944	0.3717	0.4072	0.4327	0.4309	0.4365	0.4915
		0.5964	0.5789	0.6822	0.5351	0.5630	0.5316	0.5418	0.5601	0.5762	0.6528	0.6844	0.7215	0.7661	0.8443	0.8324	0.7524	0.9716
		0.0967	0.0921	0.0886	0.0883	0.1275	0.1364	0.1814	0.1323	0.1484	0.1729	0.2004	0.1894	0.2096	0.2023	0.2216	0.2335	0.2527
		0.0050	0.0476	0.0486	0.0548	0.0683	0.0794	0.1049	0.1097	0.1090	0.1370	0.1546	0.1713	0.1758	0.1838	0.1524	0.1884	0.2043
		0.6551	0.6568	0.5785	0.5945	0.5898	0.5585	0.5768	0.5312	0.4890	0.5598	0.5826	0.5885	0.6272	0.7373	0.6458	0.7162	0.6653

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