

## APPENDIX 1

**Table A.1** *Origin of the individual silage samples*

| <b>Region of origin (no.)</b> | <b>Variety (no.)</b> |               |                 |
|-------------------------------|----------------------|---------------|-----------------|
| Berkshire (3)                 | Acclaim (5)          | Destiny (1)   | Mas09A (4)      |
| Buckinghamshire (1)           | Agreement (5)        | ES Regain (5) | Mas10C (4)      |
| Carmarthanshire (2)           | Apostrof (3)         | Fabius (1)    | Mas12 (1)       |
| Cheshire (4)                  | Anvil (1)            | Falkone (1)   | Mas17 (1)       |
| Clwyd (1)                     | Artist (1)           | Gazelle (1)   | Masiza (2)      |
| Devon (37)                    | Assorted (1)         | Goldcob (1)   | Mighty (1)      |
| Dorset (1)                    | Aurelia (2)          | Harvi (2)     | Nigella (1)     |
| Dumfries (2)                  | Avenir (1)           | Hawk (2)      | NK Bull (3)     |
| Gloucestershire (2)           | Baleric (1)          | Ixxes (5)     | Ohio (1)        |
| Gwent (1)                     | Ballade (1)          | Justina (2)   | Paddy (1)       |
| Hampshire (1)                 | Beacon (4)           | Kankas (1)    | Picker (1)      |
| Lancashire (3)                | Beethoven (3)        | Karimbo (2)   | PR39G12 (1)     |
| Nottinghamshire (2)           | Benicia (2)          | Kaspian (5)   | Regan (2)       |
| Norfolk (1)                   | Bimicia (1)          | Katy (4)      | Salgado (4)     |
| Oxfordshire (2)               | Bonapary (1)         | Klaxxon (1)   | Sapphire (2)    |
| Somerset (4)                  | Bonoport (2)         | Klaymore (2)  | Smile (1)       |
| South Yorkshire (2)           | Bowling (1)          | Konsort (2)   | Spezi (6)       |
| Suffolk (1)                   | Cadwell (1)          | Kougar (2)    | Surprise (11)   |
| Swansea (1)                   | Cerruti (2)          | Kroesus (3)   | Trial plots (1) |
| Syngenta (10)                 | Cheer (1)            | Leeds (1)     | Unknown (2)     |
| Wiltshire (7)                 | Crescendo (5)        | MA13L (1)     | Utopia (1)      |
| Welshpool (2)                 | D60 (2)              | Mas08A (2)    |                 |

**Table A.2.** *Chemical composition and particle size of the individual silage samples*

| Sample | Particle size <sup>1</sup> |      | DM<br>(g/kg) | Chemical composition (g/kg DM) <sup>2</sup> |        |     |      |       | pH  |
|--------|----------------------------|------|--------------|---|--------|-----|------|-------|-----|
|        | Mean (mm)                  | SD   |              | CP  | Starch | NDF | Ash  | OM    |     |
| 3501   | 10.53                      | 2.11 | 426          | 65.7  | 297    | 461 | 37.0 | 963.0 | 3.9 |
| 3502   | 10.70                      | 1.61 | 337          | 68.2  | 329    | 412 | 30.0 | 970.0 | 3.6 |
| 3503   | 11.11                      | 1.61 | 297          | 72.4  | 260    | 426 | 37.0 | 963.0 | 3.6 |
| 3504   | 11.17                      | 1.53 | 311          | 74.9  | 221    | 517 | 34.0 | 966.0 | 3.6 |
| 3505   | 16.16                      | 1.89 | 293          | 75.8  | 264    | 487 | 36.0 | 964.0 | 3.5 |
| 3506   | 11.47                      | 1.66 | 316          | 68.0  | 286    | 485 | 34.0 | 966.0 | 3.6 |
| 3507   | 11.01                      | 1.50 | 280          | 78.9  | 316    | 490 | 35.0 | 965.0 | 3.6 |
| 3508   | 10.99                      | 1.63 | 293          | 67.6  | 193    | 500 | 46.0 | 954.0 | 3.7 |
| 3509   | 10.42                      | 1.59 | 290          | 75.9  | 273    | 480 | 44.0 | 956.0 | 3.5 |
| 3510   | 10.98                      | 1.50 | 299          | 77.9  | 184    | 476 | 38.0 | 962.0 | 3.8 |
| 3511   | 12.64                      | 2.12 | 404          | 77.5  | 333    | 402 | 34.7 | 965.3 | 3.6 |
| 3512   | 10.90                      | 1.53 | 307          | 84.7  | 266    | 506 | 39.1 | 960.9 | 3.4 |
| 3513   | 10.49                      | 1.79 | 391          | 93.4  | 339    | 415 | 35.8 | 964.2 | 3.6 |
| 3514   | 10.71                      | 1.70 | 318          | 95.9  | 224    | 471 | 40.9 | 959.1 | 3.6 |
| 3515   | 11.06                      | 1.71 | 312          | 88.1  | 184    | 547 | 35.3 | 964.7 | 3.6 |
| 3516   | 11.02                      | 1.53 | 252          | 104.0                                       | 240    | 529 | 39.7 | 960.3 | 3.7 |
| 3517   | 10.26                      | 1.65 | 331          | 87.9  | 230    | 471 | 33.2 | 966.8 | 3.5 |
| 3518   | 10.20                      | 1.68 | 342          | 83.3  | 284    | 482 | 32.2 | 967.8 | 3.6 |
| 3519   | 9.86                       | 1.84 | 363          | 88.7  | 270    | 487 | 35.8 | 964.2 | 3.8 |
| 3520   | 14.43                      | 2.02 | 257          | 107.4                                       | 151    | 531 | 42.8 | 957.2 | 3.6 |
| 3521   | 14.83                      | 1.86 | 258          | 84.5  | 193    | 579 | 41.9 | 958.1 | 4.1 |
| 3522   | 12.52                      | 2.03 | 356          | 85.7  | 301    | 435 | 37.1 | 962.9 | 3.7 |
| 3523   | 13.72                      | 1.90 | 304          | 98.6  | 260    | 491 | 47.0 | 953.0 | 3.9 |
| 3524   | 14.64                      | 2.04 | 290          | 89.1  | 216    | 515 | 45.9 | 954.1 | 3.7 |
| 3525   | 13.29                      | 1.80 | 276          | 81.8  | 180    | 527 | 61.2 | 938.8 | 3.6 |
| 3526   | 12.14                      | 1.70 | 260          | 87.8  | 174    | 562 | 36.6 | 963.4 | 3.5 |
| 3527   | 16.47                      | 2.09 | 313          | 80.5  | 193    | 521 | 40.6 | 959.4 | 3.6 |
| 3528   | 15.76                      | 2.01 | 281          | 86.4  | 180    | 489 | 42.0 | 958.0 | 3.5 |
| 3529   | 10.53                      | 1.59 | 302          | 79.1  | 199    | 531 | 48.0 | 952.0 | 3.7 |
| 3530   | 12.41                      | 1.97 | 348          | 73.2  | 215    | 497 | 47.9 | 952.1 | 3.6 |
| 3531   | 11.25                      | 2.19 | 382          | 91.0  | 310    | 511 | 36.1 | 963.9 | 4.0 |
| 3532   | 11.48                      | 2.01 | 416          | 77.9  | 305    | 469 | 40.4 | 959.6 | 4.0 |
| 3533   | 14.36                      | 2.08 | 315          | 81.5  | 229    | 553 | 34.9 | 965.1 | 3.5 |
| 3534   | 17.64                      | 1.83 | 211          | 71.0  | 107    | 586 | 30.8 | 969.2 | 3.7 |
| 3535   | 14.55                      | 1.81 | 257          | 63.7  | 186    | 478 | 30.3 | 969.7 | 3.6 |
| 3536   | 11.68                      | 1.98 | 352          | 80.2  | 245    | 438 | 33.8 | 966.2 | 3.6 |
| 3537   | 10.53                      | 1.62 | 329          | 77.2  | 240    | 391 | 34.0 | 966.0 | 3.6 |
| 3538   | 11.00                      | 1.53 | 284          | 81.3  | 206    | 450 | 37.3 | 962.7 | 3.6 |
| 3539   | 12.69                      | 1.96 | 345          | 88.1  | 217    | 442 | 48.4 | 951.6 | 3.7 |
| 3540   | 11.27                      | 1.59 | 308          | 81.8  | 168    | 453 | 35.7 | 964.3 | 3.6 |
| 3541   | 10.70                      | 1.68 | 328          | 70.4  | 262    | 434 | 39.9 | 960.1 | 3.3 |
| 3542   | 11.92                      | 2.05 | 339          | 78.1  | 304    | 428 | 34.8 | 965.2 | 3.8 |
| 3543   | 11.98                      | 2.00 | 372          | 73.2  | 204    | 410 | 37.1 | 962.9 | 3.6 |
| 3544   | 12.11                      | 1.64 | 311          | 83.9  | 212    | 386 | 41.8 | 958.2 | 3.5 |
| 3545   | 11.08                      | 1.59 | 345          | 83.0  | 322    | 349 | 40.0 | 960.0 | 3.6 |

| Sample | Particle size <sup>1</sup> |      | DM<br>(g/kg) | Chemical composition (g/kg DM) <sup>2</sup> |        |     |      |       | pH  |
|--------|----------------------------|------|--------------|---|--------|-----|------|-------|-----|
|        | Mean, mm                   | SD   |              | CP  | Starch | NDF | Ash  | OM    |     |
| 3546   | 11.12                      | 1.68 | 318          | 79.3  | 252    | 416 | 47.2 | 952.8 | 3.5 |
| 3547   | 14.51                      | 2.02 | 332          | 82.3  | 117    | 419 | 41.0 | 959.0 | 3.5 |
| 3548   | 11.66                      | 1.69 | 302          | 77.1  | 242    | 412 | 38.7 | 961.3 | 3.6 |
| 3549   | 15.12                      | 1.85 | 238          | 83.6  | 171    | 499 | 38   | 962.0 | 3.4 |
| 3550   | 14.25                      | 1.90 | 280          | 78.0  | 286    | 452 | 32   | 968.0 | 3.8 |
| 3551   | 12.38                      | 1.95 | 333          | 84.3  | 305    | 441 | 36   | 964.0 | 3.7 |
| 3552   | 14.03                      | 1.96 | 298          | 87.2  | 273    | 454 | 36   | 964.0 | 3.7 |
| 3553   | 10.31                      | 1.89 | 332          | 83.9  | 353    | 392 | 31   | 969.0 | 3.8 |
| 3554   | 10.65                      | 1.98 | 306          | 79.7  | 276    | 472 | 35   | 965.0 | 3.7 |
| 3555   | 10.98                      | 1.80 | 305          | 84.4  | 270    | 453 | 38   | 962.0 | 3.7 |
| 3556   | 9.58                       | 1.84 | 362          | 82.0  | 256    | 488 | 30   | 970.0 | 3.7 |
| 3557   | 12.33                      | 1.98 | 328          | 82.1  | 264    | 482 | 38   | 962.0 | 3.6 |
| 3558   | 10.45                      | 1.62 | 354          | 85.3  | 276    | 508 | 30   | 970.0 | 4.0 |
| 3559   | 10.42                      | 1.67 | 307          | 75.8  | 303    | 446 | 43   | 957.0 | 3.6 |
| 3560   | 10.77                      | 1.69 | 295          | 83.1  | 252    | 432 | 49   | 951.0 | 3.6 |
| 3561   | 14.70                      | 1.93 | 318          | 86.1  | 200    | 477 | 44   | 956.0 | 3.6 |
| 3562   | 12.44                      | 1.99 | 334          | 102.6                                       | 281    | 454 | 45   | 955.0 | 3.8 |
| 3563   | 12.50                      | 1.79 | 296          | 83.3  | 216    | 493 | 37   | 963.0 | 3.6 |
| 3564   | 12.52                      | 1.89 | 316          | 97.2  | 259    | 503 | 40   | 960.0 | 3.7 |
| 3565   | 8.87                       | 1.91 | 270          | 86.7  | 206    | 515 | 46   | 954.0 | 4.0 |
| 3566   | 9.74                       | 2.10 | 334          | 75.9  | 210    | 496 | 46   | 954.0 | 4.1 |
| 3567   | 10.98                      | 1.84 | 262          | 80.2  | 193    | 498 | 51   | 949.0 | 4.0 |
| 3568   | 14.11                      | 1.95 | 310          | 81.4  | 269    | 476 | 35   | 965.0 | 3.7 |
| 3569   | 17.52                      | 1.95 | 250          | 72.0  | 267    | 495 | 25   | 975.0 | 3.7 |
| 3570   | 9.80                       | 1.82 | 286          | 82.6  | 242    | 456 | 41   | 959.0 | 4.0 |
| 3571   | 9.73                       | 2.02 | 308          | 79.5  | 367    | 521 | 48   | 952.0 | 4.2 |
| 3572   | 8.77                       | 2.34 | 436          | 95.4  | 220    | 584 | 35   | 965.0 | 3.8 |
| 3573   | 12.90                      | 1.90 | 305          | 84.4  | 172    | 492 | 40   | 960.0 | 3.5 |
| 3574   | 8.26                       | 2.30 | 376          | 87.5  | 240    | 473 | 47   | 953.0 | 4.2 |
| 3575   | 8.89                       | 2.06 | 302          | 85.8  | 160    | 527 | 45   | 955.0 | 4.1 |
| 3576   | 8.94                       | 1.98 | 277          | 81.4  | 196    | 486 | 43   | 957.0 | 4.0 |
| 3577   | 8.67                       | 1.95 | 294          | 80.4  | 249    | 454 | 43   | 957.0 | 4.0 |
| 3578   | 9.79                       | 1.85 | 260          | 83.9  | 176    | 479 | 47   | 953.0 | 3.9 |
| 3579   | 10.72                      | 1.68 | 332          | 83.7  | 232    | 471 | 42   | 958.0 | 3.9 |
| 3580   | 13.67                      | 1.79 | 276          | 99.8  | 202    | 510 | 42   | 958.0 | 3.9 |
| 3581   | 19.05                      | 1.88 | 226          | 112.0                                       | 98     | 549 | 41   | 959.0 | 3.5 |
| 3582   | 14.09                      | 1.96 | 321          | 93.6  | 168    | 520 | 37   | 963.0 | 4.0 |
| 3583   | 12.37                      | 1.83 | 316          | 88.2  | 218    | 462 | 44   | 956.0 | 3.7 |
| 3584   | 10.88                      | 1.78 | 325          | 90.8  | 237    | 474 | 38   | 962.0 | 3.6 |
| 3585   | 17.96                      | 1.92 | 297          | 85.2  | 178    | 465 | 48   | 952.0 | 3.7 |
| 3586   | 14.93                      | 2.06 | 362          | 81.7  | 146    | 351 | 31   | 969.0 | 3.7 |
| 3587   | 11.27                      | 1.75 | 334          | 90.0  | 156    | 404 | 42   | 958.0 | 3.6 |
| 3588   | 12.27                      | 1.81 | 296          | 83.4  | 176    | 412 | 38   | 962.0 | 3.5 |
| 3589   | 9.73                       | 1.86 | 365          | 86.8  | 208    | 441 | 35   | 965.0 | 3.8 |
| 3590   | 14.56                      | 1.81 | 218          | 96.1  | 114    | 646 | 35   | 965.0 | 3.7 |

<sup>1</sup>Geometric mean particle size estimated with Penn State Particle Separator. <sup>2</sup>CP: crude protein, NDF: neutral detergent fibre, OM: organic matter, DM: dry matter.

**Table A.3.** Digestibility (g/kg), coefficient of variation (CV, %) and the DOMD<sup>1</sup> and ME<sup>1</sup> of individual silages.

| Sample | Dry matter |      | Organic matter |      | DOMD <sub>TDM</sub> | ME <sub>TDM</sub><br>(MJ/kg TDM) |
|--------|------------|------|----------------|------|---------------------|----------------------------------|
|        | Dig        | CV   | Dig            | CV   |                     |                                  |
| 3501   | 657        | 5.18 | 676            | 4.60 | 0.664               | 10.42                            |
| 3502   | 668        | 5.68 | 683            | 5.58 | 0.681               | 10.68                            |
| 3503   | 668        | 4.34 | 691            | 4.13 | 0.686               | 10.77                            |
| 3504   | 645        | 9.34 | 665            | 9.12 | 0.665               | 10.45                            |
| 3505   | 672        | 3.59 | 693            | 3.76 | 0.689               | 10.81                            |
| 3506   | 685        | 5.71 | 704            | 5.96 | 0.699               | 10.98                            |
| 3507   | 694        | 1.56 | 715            | 1.35 | 0.711               | 11.16                            |
| 3508   | 597        | 6.09 | 620            | 5.79 | 0.620               | 9.73                             |
| 3509   | 641        | 6.88 | 663            | 6.73 | 0.658               | 10.32                            |
| 3510   | 621        | 4.81 | 638            | 4.65 | 0.640               | 10.05                            |
| 3511   | 652        | 4.60 | 677            | 5.37 | 0.667               | 10.47                            |
| 3512   | 696        | 1.29 | 712            | 1.01 | 0.701               | 11.00                            |
| 3513   | 692        | 3.36 | 707            | 3.58 | 0.695               | 10.91                            |
| 3514   | 632        | 5.72 | 647            | 5.38 | 0.644               | 10.10                            |
| 3515   | 654        | 1.27 | 668            | 1.25 | 0.664               | 10.43                            |
| 3516   | 645        | 0.98 | 662            | 1.21 | 0.667               | 10.47                            |
| 3517   | 670        | 4.55 | 686            | 4.40 | 0.681               | 10.69                            |
| 3518   | 636        | 8.84 | 656            | 8.28 | 0.655               | 10.29                            |
| 3519   | 638        | 4.51 | 655            | 4.37 | 0.650               | 10.20                            |
| 3520   | 629        | 4.44 | 645            | 4.50 | 0.644               | 10.11                            |
| 3521   | 597        | 4.09 | 615            | 3.82 | 0.621               | 9.74                             |
| 3522   | 684        | 3.68 | 695            | 3.43 | 0.679               | 10.66                            |
| 3523   | 646        | 0.64 | 661            | 1.03 | 0.649               | 10.19                            |
| 3524   | 688        | 6.41 | 704            | 6.27 | 0.689               | 10.82                            |
| 3525   | 671        | 2.89 | 680            | 3.24 | 0.665               | 10.44                            |
| 3526   | 651        | 1.52 | 663            | 1.52 | 0.664               | 10.42                            |
| 3527   | 661        | 2.43 | 675            | 2.66 | 0.662               | 10.40                            |
| 3528   | 683        | 3.85 | 700            | 3.84 | 0.691               | 10.86                            |
| 3529   | 634        | 4.51 | 653            | 4.49 | 0.642               | 10.08                            |
| 3530   | 673        | 3.53 | 696            | 3.15 | 0.681               | 10.68                            |
| 3531   | 715        | 4.87 | 727            | 4.65 | 0.712               | 11.18                            |
| 3532   | 684        | 3.52 | 702            | 2.81 | 0.687               | 10.79                            |
| 3533   | 669        | 3.00 | 687            | 2.85 | 0.683               | 10.72                            |
| 3534   | 563        | 3.81 | 588            | 3.22 | 0.613               | 9.63                             |
| 3535   | 616        | 1.97 | 634            | 2.62 | 0.645               | 10.12                            |
| 3536   | 660        | 2.62 | 676            | 3.08 | 0.670               | 10.52                            |
| 3537   | 679        | 5.57 | 699            | 5.34 | 0.692               | 10.87                            |
| 3538   | 688        | 4.06 | 703            | 3.52 | 0.691               | 10.86                            |
| 3539   | 681        | 2.10 | 698            | 1.50 | 0.683               | 10.72                            |
| 3540   | 657        | 1.55 | 677            | 1.41 | 0.673               | 10.56                            |
| 3541   | 679        | 2.09 | 693            | 1.76 | 0.683               | 10.72                            |
| 3542   | 657        | 4.55 | 679            | 4.10 | 0.673               | 10.57                            |
| 3543   | 691        | 4.09 | 711            | 4.15 | 0.697               | 10.94                            |
| 3544   | 722        | 3.19 | 734            | 3.22 | 0.716               | 11.24                            |
| 3545   | 691        | 3.33 | 715            | 3.39 | 0.705               | 11.07                            |
| 3546   | 693        | 1.29 | 714            | 1.36 | 0.704               | 11.06                            |

| Sample | Dry matter |       | Organic matter |       | DOMD <sub>TDM</sub> | ME <sub>TDM</sub><br>(MJ/kg TDM) |
|--------|------------|-------|----------------|-------|---------------------|----------------------------------|
|        | Dig        | CV    | Dig            | CV    |                     |                                  |
| 3547   | 710        | 4.13  | 733            | 3.54  | 0.720               | 11.30                            |
| 3548   | 683        | 2.38  | 705            | 2.95  | 0.695               | 10.91                            |
| 3549   | 703        | 4.41  | 727            | 4.06  | 0.724               | 11.37                            |
| 3550   | 731        | 2.10  | 752            | 2.42  | 0.747               | 11.72                            |
| 3551   | 694        | 2.39  | 712            | 2.23  | 0.702               | 11.02                            |
| 3552   | 715        | 3.78  | 730            | 3.79  | 0.724               | 11.36                            |
| 3553   | 698        | 1.34  | 715            | 1.45  | 0.711               | 11.16                            |
| 3554   | 701        | 3.53  | 716            | 3.90  | 0.711               | 11.16                            |
| 3555   | 694        | 1.34  | 707            | 1.78  | 0.694               | 10.89                            |
| 3556   | 685        | 3.59  | 705            | 3.55  | 0.698               | 10.96                            |
| 3557   | 691        | 2.32  | 709            | 2.03  | 0.706               | 11.09                            |
| 3558   | 685        | 9.66  | 698            | 10.04 | 0.692               | 10.86                            |
| 3559   | 665        | 8.42  | 684            | 8.56  | 0.678               | 10.65                            |
| 3560   | 747        | 3.58  | 765            | 4.07  | 0.751               | 11.79                            |
| 3561   | 704        | 1.12  | 722            | 1.16  | 0.713               | 11.19                            |
| 3562   | 707        | 4.66  | 726            | 4.34  | 0.710               | 11.14                            |
| 3563   | 713        | 1.16  | 732            | 1.42  | 0.721               | 11.32                            |
| 3564   | 691        | 1.94  | 701            | 1.98  | 0.689               | 10.82                            |
| 3565   | 655        | 4.23  | 673            | 4.19  | 0.666               | 10.46                            |
| 3566   | 630        | 2.08  | 646            | 2.61  | 0.635               | 9.97                             |
| 3567   | 600        | 13.32 | 623            | 12.91 | 0.624               | 9.80                             |
| 3568   | 754        | 8.70  | 767            | 8.63  | 0.756               | 11.88                            |
| 3569   | 633        | 6.18  | 654            | 5.85  | 0.663               | 10.42                            |
| 3570   | 660        | 1.24  | 682            | 1.38  | 0.676               | 10.62                            |
| 3571   | 723        | 28.24 | 735            | 26.97 | 0.715               | 11.23                            |
| 3572   | 704        | 4.15  | 725            | 4.04  | 0.708               | 11.11                            |
| 3573   | 758        | 4.19  | 780            | 3.87  | 0.763               | 11.99                            |
| 3574   | 683        | 7.23  | 703            | 7.40  | 0.686               | 10.76                            |
| 3575   | 680        | 8.00  | 698            | 7.82  | 0.685               | 10.75                            |
| 3576   | 629        | 5.09  | 651            | 5.39  | 0.648               | 10.17                            |
| 3577   | 648        | 4.74  | 666            | 5.20  | 0.658               | 10.33                            |
| 3578   | 615        | 9.09  | 635            | 9.02  | 0.634               | 9.95                             |
| 3579   | 715        | 2.33  | 731            | 2.69  | 0.716               | 11.23                            |
| 3580   | 711        | 1.80  | 732            | 2.05  | 0.722               | 11.34                            |
| 3581   | 605        | 12.74 | 626            | 14.09 | 0.638               | 10.02                            |
| 3582   | 666        | 8.82  | 682            | 8.78  | 0.677               | 10.63                            |
| 3583   | 700        | 7.02  | 719            | 7.19  | 0.709               | 11.14                            |
| 3584   | 753        | 8.80  | 766            | 8.80  | 0.751               | 11.79                            |
| 3585   | 661        | 0.54  | 685            | 0.41  | 0.677               | 10.62                            |
| 3586   | 669        | 1.28  | 685            | 1.45  | 0.673               | 10.56                            |
| 3587   | 674        | 1.59  | 694            | 1.82  | 0.684               | 10.74                            |
| 3588   | 669        | 3.98  | 684            | 4.08  | 0.677               | 10.63                            |
| 3589   | 628        | 2.82  | 640            | 2.87  | 0.633               | 9.94                             |
| 3590   | 534        | 3.90  | 552            | 3.73  | 0.578               | 9.07                             |

<sup>1</sup>Digestible organic matter in the dry matter (DOMD) and metabolisable energy (ME, calculated as DOMD x0.0157) both corrected for volatiles and expressed in terms of true dry matter.

**Table A.4** *Dry matter solubility and mean observed degradability, and coefficients of variation for the individual silage samples*

| Sample | Solubility (%) | Mean (n=3) observed degradability at time (h) |       |       |       |       |       |       | Coefficient of variation (%) for degradability at time (h) |      |       |       |      |      |
|--------|----------------|---|-------|-------|-------|-------|-------|-------|--|------|-------|-------|------|------|
|        |                | 0   | 3     | 6     | 12    | 24    | 48    | 72    | 3  | 6    | 12    | 24    | 48   | 72   |
| 3501   | 9.0            | 33.65   | 35.86 | 39.72 | 49.46 | 64.75 | 72.23 | 76.73 | 4.53   | 1.03 | 8.07  | 5.14  | 3.4  | 5.09 |
| 3502   | 15.32          | 40.04   | 43.93 | 40.74 | 49.86 | 59.85 | 74.29 | 76.23 | 2.2  | 2.18 | 5.05  | 9.73  | 2.26 | 3.89 |
| 3503   | 16.26          | 43.32   | 41.08 | 44.05 | 53.40 | 63.95 | 74.31 | 77.15 | 10.69  | 4.78 | 3.81  | 7.22  | 3.42 | 4.34 |
| 3504   | 9.32           | 35.61   | 32.39 | 36.80 | 43.32 | 54.13 | 67.06 | 71.00 | 6.89   | 4.14 | 1.88  | 9.96  | 5.39 | 5.12 |
| 3505   | 15.47          | 39.44   | 35.72 | 36.38 | 39.99 | 57.03 | 68.01 | 72.47 | 11.12  | 2.43 | 12    | 7.89  | 1.39 | 4.49 |
| 3506   | 10.41          | 41.22   | 40.73 | 40.33 | 44.94 | 59.61 | 71.36 | 74.52 | 6.39   | 6.28 | 8.84  | 4.61  | 4.59 | 3.37 |
| 3507   | 10.3           | 38.14   | 39.25 | 39.56 | 48.79 | 57.27 | 69.78 | 72.38 | 7.45   | 7    | 4.09  | 7.99  | 2.76 | 5.39 |
| 3508   | 16.78          | 40.16   | 40.48 | 41.16 | 47.07 | 58.54 | 69.89 | 71.83 | 4.08   | 2.97 | 7.32  | 8.9   | 2.4  | 5.34 |
| 3509   | 14.45          | 43.40   | 43.47 | 46.37 | 51.55 | 62.20 | 75.57 | 77.48 | 3.92   | 3.44 | 7.78  | 6.01  | 0.94 | 4.35 |
| 3510   | 13.71          | 38.16   | 40.71 | 43.40 | 49.80 | 61.01 | 72.86 | 75.95 | 6.42   | 4.24 | 11.22 | 8.29  | 2.12 | 4.18 |
| 3511   | 16.3           | 39.20   | 39.65 | 43.00 | 53.05 | 61.29 | 74.81 | 77.66 | 8.16   | 2.74 | 8.18  | 4.6   | 3.27 | 4.77 |
| 3512   | 15.72          | 46.50   | 50.24 | 51.63 | 61.61 | 68.64 | 76.96 | 80.78 | 1.69   | 4.37 | 3.72  | 2.35  | 1.79 | 3.3  |
| 3513   | 18.14          | 49.96   | 51.24 | 53.30 | 60.08 | 68.60 | 77.50 | 80.19 | 2.74   | 0.85 | 3.6   | 2.38  | 1.81 | 1.46 |
| 3514   | 18.6           | 47.13   | 49.49 | 51.98 | 56.94 | 61.97 | 74.79 | 77.53 | 1.5  | 1.02 | 1.26  | 6.31  | 0.87 | 2.06 |
| 3515   | 11.44          | 40.98   | 43.64 | 44.14 | 49.76 | 56.84 | 73.35 | 77.42 | 5.03   | 4.62 | 10.81 | 2.29  | 3.76 | 3.38 |
| 3516   | 16.19          | 35.34   | 40.70 | 40.75 | 50.01 | 58.22 | 71.12 | 75.18 | 10.13  | 6.93 | 9.03  | 3.81  | 1.28 | 2.91 |
| 3517   | 12.79          | 49.50   | 51.48 | 52.31 | 57.98 | 65.60 | 76.01 | 79.28 | 2.39   | 0.83 | 3.82  | 2.95  | 4.39 | 2.62 |
| 3518   | 9.88           | 48.56   | 51.11 | 52.79 | 57.75 | 64.34 | 74.69 | 77.97 | 3.49   | 2.98 | 5.83  | 4.5   | 1.81 | 2.9  |
| 3519   | 14.04          | 49.49   | 51.34 | 53.89 | 56.81 | 64.44 | 74.73 | 78.62 | 3.53   | 0.68 | 4.19  | 6.36  | 1.45 | 2.6  |
| 3520   | 14.11          | 37.27   | 38.14 | 41.88 | 50.85 | 58.65 | 71.65 | 76.02 | 2.54   | 5.2  | 12.75 | 4.82  | 4.12 | 5.04 |
| 3521   | 3.17           | 37.83   | 35.46 | 40.85 | 42.75 | 53.37 | 65.37 | 74.62 | 4.84   | 9.91 | 6.55  | 8.36  | 6.11 | 4.59 |
| 3522   | 4.18           | 46.22   | 45.52 | 50.44 | 53.54 | 64.36 | 71.87 | 81.60 | 5.85   | 2.32 | 6.55  | 4.46  | 7.57 | 1.43 |
| 3523   | 8.18           | 41.95   | 41.75 | 46.77 | 49.30 | 59.25 | 67.64 | 76.69 | 6.18   | 3.55 | 1.1   | 8.75  | 5.11 | 0.93 |
| 3524   | 7.6            | 42.25   | 42.17 | 45.98 | 51.14 | 60.35 | 68.26 | 76.79 | 5.55   | 0.99 | 0.56  | 6.48  | 6.41 | 2.86 |
| 3525   | 19.92          | 42.70   | 41.15 | 45.63 | 47.79 | 60.10 | 67.05 | 76.44 | 3.35   | 2.6  | 6.27  | 5.29  | 5.46 | 2.02 |
| 3526   | 18.6           | 41.07   | 39.83 | 43.68 | 45.23 | 58.77 | 65.89 | 72.13 | 6.3  | 2.99 | 2.35  | 7.64  | 4.64 | 4.47 |
| 3527   | 16.74          | 43.17   | 39.38 | 46.24 | 46.91 | 57.47 | 64.13 | 73.45 | 4.25   | 1.48 | 7.96  | 10.61 | 9.26 | 2.49 |

| Sample | Solubility (%) | Mean (n=3) observed degradability at time (h) |       |       |       |       |       |       | Coefficient of variation (%) for degradability at time (h) |       |      |       |      |      |
|--------|----------------|---|-------|-------|-------|-------|-------|-------|--|-------|------|-------|------|------|
|        |                | 0   | 3     | 6     | 12    | 24    | 48    | 72    | 3  | 6     | 12   | 24    | 48   | 72   |
| 3528   | 7.49           | 45.76   | 42.49 | 48.73 | 50.00 | 61.82 | 69.32 | 75.51 | 1.7  | 1.84  | 7.62 | 2.79  | 8.55 | 1.26 |
| 3529   | 7.97           | 44.06   | 44.65 | 47.26 | 49.58 | 58.98 | 66.82 | 74.20 | 3  | 2.05  | 1.46 | 5.45  | 2.03 | 3.36 |
| 3530   | 7.38           | 43.04   | 42.48 | 46.81 | 50.90 | 62.07 | 70.28 | 78.63 | 5.76   | 1.93  | 4.43 | 8.96  | 8.36 | 2.07 |
| 3531   | 7.12           | 46.74   | 49.60 | 51.92 | 55.57 | 63.61 | 69.88 | 77.20 | 4.48   | 4.01  | 2.23 | 2.3   | 6.08 | 1.7  |
| 3532   | 13.02          | 32.32   | 37.39 | 39.45 | 45.16 | 54.58 | 66.34 | 74.11 | 1.7  | 5.19  | 1.42 | 5.82  | 7.32 | 1.47 |
| 3533   | 11.72          | 47.42   | 50.18 | 50.80 | 53.08 | 61.22 | 68.67 | 75.76 | 1.9  | 2.93  | 2.97 | 1.02  | 2.55 | 1.05 |
| 3534   | 13.69          | 27.38   | 27.92 | 29.23 | 35.98 | 46.37 | 58.78 | 64.40 | 9.97   | 11.56 | 8.79 | 20.49 | 8.18 | 5.87 |
| 3535   | 23.39          | 41.71   | 42.57 | 42.72 | 45.91 | 52.31 | 61.12 | 71.28 | 3.35   | 3.52  | 8.83 | 1.26  | 1.91 | 3.01 |
| 3536   | 21.63          | 43.25   | 45.97 | 48.14 | 51.68 | 60.41 | 69.48 | 76.29 | 4.61   | 0.9   | 1.14 | 3.36  | 4.82 | 0.87 |
| 3537   | 14.38          | 48.88   | 51.84 | 53.36 | 55.79 | 61.58 | 71.42 | 77.37 | 3.2  | 3.02  | 3.15 | 3.68  | 2.46 | 1.84 |
| 3538   | 8.61           | 40.46   | 43.64 | 47.37 | 49.32 | 59.49 | 66.15 | 74.70 | 4.39   | 2.28  | 4.46 | 2.68  | 5.13 | 1.59 |
| 3539   | 17.04          | 50.59   | 51.93 | 50.98 | 54.05 | 60.09 | 66.16 | 74.71 | 1.75   | 1.16  | 3.91 | 0.53  | 3.68 | 2.98 |
| 3540   | 11.9           | 45.06   | 47.64 | 50.62 | 50.79 | 60.00 | 65.15 | 73.68 | 2.9  | 9.53  | 5.3  | 4.5   | 6.14 | 1    |
| 3541   | 11.87          | 46.68   | 49.00 | 52.77 | 51.68 | 61.65 | 74.50 | 78.70 | 5.36   | 5.75  | 1.25 | 0.95  | 2.3  | 2.75 |
| 3542   | 23.85          | 51.03   | 49.89 | 52.78 | 52.08 | 56.73 | 70.99 | 75.75 | 1.39   | 4.92  | 2.75 | 1.66  | 3.72 | 1.78 |
| 3543   | 20.68          | 44.66   | 46.07 | 49.80 | 50.91 | 59.36 | 71.57 | 77.85 | 2.49   | 3.62  | 2.04 | 4.27  | 3.91 | 2.11 |
| 3544   | 13.84          | 48.58   | 49.34 | 52.35 | 52.18 | 65.31 | 75.97 | 79.74 | 3.89   | 2.11  | 0.79 | 2.99  | 3.21 | 2.46 |
| 3545   | 14.97          | 55.86   | 54.62 | 57.60 | 60.41 | 66.03 | 77.68 | 81.58 | 1.76   | 9.13  | 1.54 | 3.53  | 2.71 | 1.86 |
| 3546   | 26.61          | 47.06   | 47.52 | 50.57 | 51.83 | 60.31 | 73.38 | 76.07 | 4.9  | 5.76  | 3.22 | 0.74  | 2.42 | 6.15 |
| 3547   | 23.32          | 53.02   | 52.86 | 56.57 | 56.61 | 63.85 | 76.69 | 81.92 | 3.51   | 4.04  | 3.96 | 2.21  | 2.54 | 2.49 |
| 3548   | 26.64          | 45.43   | 47.09 | 49.35 | 52.12 | 59.72 | 71.48 | 75.74 | 3.91   | 5.99  | 9.43 | 5.65  | 1.31 | 3.7  |
| 3549   | 13.8           | 41.19   | 41.32 | 46.31 | 49.19 | 54.91 | 72.50 | 74.69 | 7.56   | 6.82  | 5.41 | 7.61  | 1.53 | 2.65 |
| 3550   | 3.45           | 41.19   | 45.20 | 52.60 | 53.23 | 65.18 | 77.02 | 81.80 | 5.03   | 5.29  | 3.74 | 0.96  | 0.5  | 1.81 |
| 3551   | 9.19           | 34.80   | 40.87 | 42.51 | 43.99 | 60.34 | 72.54 | 76.23 | 6.8  | 10.21 | 6.48 | 3.46  | 2.85 | 1.64 |
| 3552   | 6.74           | 46.56   | 46.54 | 50.55 | 52.19 | 61.95 | 73.41 | 78.34 | 1.99   | 7.93  | 6.56 | 4.96  | 5.83 | 1.23 |
| 3553   | 19.53          | 42.12   | 47.90 | 48.40 | 51.68 | 64.80 | 75.14 | 80.43 | 6.33   | 5.66  | 5.6  | 3.53  | 1.17 | 1.47 |
| 3554   | 6.31           | 41.14   | 43.08 | 43.60 | 46.23 | 60.19 | 74.31 | 79.23 | 9.31   | 9.85  | 4.8  | 6.88  | 1.75 | 2.45 |

| Sample | Solubility (%) | Mean (n=3) observed degradability at time (h) |       |       |       |       |       |       | Coefficient of variation (%) for degradability at time (h) |      |       |       |      |      |
|--------|----------------|---|-------|-------|-------|-------|-------|-------|--|------|-------|-------|------|------|
|        |                | 0   | 3     | 6     | 12    | 24    | 48    | 72    | 3  | 6    | 12    | 24    | 48   | 72   |
| 3555   | 15.85          | 41.12   | 42.94 | 44.91 | 49.11 | 59.39 | 73.23 | 76.53 | 2.06   | 3.29 | 8.94  | 0.91  | 2.42 | 3.12 |
| 3556   | 6.65           | 33.28   | 35.12 | 38.45 | 43.97 | 58.72 | 68.28 | 74.76 | 5.91   | 3.02 | 2.43  | 3.34  | 5.22 | 1.13 |
| 3557   | 3.31           | 50.28   | 50.51 | 51.25 | 54.69 | 62.54 | 75.05 | 76.06 | 2.6  | 3.43 | 1.88  | 0.85  | 0.88 | 1.4  |
| 3558   | 10.8           | 33.91   | 40.21 | 38.41 | 42.65 | 57.63 | 69.22 | 72.46 | 6.16   | 6.74 | 4.27  | 8.75  | 3.75 | 2.99 |
| 3559   | 21.25          | 46.68   | 50.00 | 47.38 | 51.03 | 63.23 | 73.36 | 76.46 | 1.67   | 3.41 | 5.79  | 3.68  | 0.5  | 2.16 |
| 3560   | 21.15          | 53.09   | 54.39 | 55.07 | 60.27 | 68.03 | 79.57 | 83.87 | 5.27   | 2.21 | 5.1   | 4.39  | 1.26 | 1.49 |
| 3561   | 13.35          | 42.04   | 43.32 | 43.62 | 50.08 | 57.35 | 70.65 | 78.22 | 9.51   | 3.8  | 1.88  | 3.92  | 2.07 | 2.39 |
| 3562   | 15.71          | 38.21   | 41.75 | 43.66 | 49.19 | 57.79 | 69.86 | 76.73 | 5.92   | 3.4  | 1.99  | 5.29  | 1.41 | 5.15 |
| 3563   | 16.69          | 43.51   | 45.88 | 50.03 | 48.44 | 59.95 | 72.04 | 77.55 | 2.18   | 1.88 | 2.91  | 8.32  | 1.56 | 0.66 |
| 3564   | 9.6            | 42.73   | 46.50 | 47.18 | 49.07 | 56.15 | 69.80 | 76.40 | 5.3  | 4.81 | 3.17  | 4.65  | 4.78 | 2.77 |
| 3565   | 16.84          | 38.57   | 41.50 | 41.02 | 45.29 | 55.45 | 67.41 | 75.97 | 8.57   | 4.89 | 1.58  | 3.84  | 5.13 | 3.01 |
| 3566   | 7.24           | 36.03   | 37.78 | 39.80 | 43.56 | 52.16 | 66.20 | 75.42 | 5.45   | 2.31 | 5.16  | 6.89  | 3.17 | 0.83 |
| 3567   | 15.96          | 36.10   | 40.64 | 41.65 | 45.70 | 56.67 | 64.46 | 72.81 | 4.81   | 8.42 | 4.81  | 6.85  | 8.36 | 2.08 |
| 3568   | 12.86          | 47.68   | 49.49 | 52.26 | 53.71 | 62.40 | 73.59 | 78.97 | 2.53   | 1.81 | 3.46  | 5.2   | 4.37 | 4.89 |
| 3569   | 10.83          | 38.65   | 40.70 | 43.74 | 46.56 | 56.92 | 69.47 | 74.88 | 8.95   | 7.26 | 1.42  | 3.88  | 3.02 | 4.91 |
| 3570   | 14.94          | 43.00   | 41.81 | 47.56 | 50.01 | 56.96 | 68.93 | 77.63 | 0.91   | 1.75 | 5.12  | 4.26  | 4.15 | 4.37 |
| 3571   | 11.01          | 38.92   | 42.87 | 41.90 | 48.39 | 60.20 | 69.53 | 73.66 | 1.42   | 3.44 | 5.05  | 1.25  | 6.41 | 6.19 |
| 3572   | 28.14          | 42.40   | 45.88 | 49.20 | 56.24 | 67.96 | 74.95 | 80.79 | 3.24   | 2.09 | 4.22  | 3.38  | 6.4  | 4.93 |
| 3573   | 9.54           | 46.81   | 49.36 | 51.82 | 58.43 | 68.21 | 78.35 | 83.02 | 2.45   | 4.76 | 5.86  | 4.9   | 7.49 | 3.53 |
| 3574   | 13.54          | 38.50   | 40.89 | 44.45 | 48.75 | 59.16 | 71.07 | 76.79 | 2.43   | 1.33 | 2.68  | 1.8   | 4.39 | 5.79 |
| 3575   | 9.4            | 36.72   | 38.85 | 39.45 | 46.88 | 56.12 | 67.34 | 74.09 | 3.94   | 8.9  | 7.38  | 6.76  | 2.6  | 4.1  |
| 3576   | 16.49          | 43.77   | 44.82 | 45.18 | 50.97 | 62.22 | 69.65 | 74.76 | 7.47   | 1.47 | 7.77  | 2.49  | 6.29 | 4.27 |
| 3577   | 17.6           | 42.12   | 43.10 | 44.25 | 49.28 | 61.93 | 70.61 | 74.36 | 1.83   | 0.98 | 4.23  | 2.76  | 8.01 | 5.6  |
| 3578   | 13.85          | 40.73   | 45.46 | 46.74 | 48.33 | 62.29 | 68.25 | 76.37 | 1.46   | 2.38 | 2.54  | 3.8   | 4.19 | 4.91 |
| 3579   | 7.1            | 49.32   | 51.56 | 52.79 | 59.73 | 66.20 | 75.88 | 78.59 | 2.9  | 3.21 | 3.15  | 2.96  | 3.35 | 5.99 |
| 3580   | 19.36          | 40.25   | 41.58 | 44.24 | 49.14 | 59.79 | 68.62 | 71.55 | 3.05   | 2.45 | 11.81 | 6.07  | 7.68 | 7.42 |
| 3581   | 9.14           | 32.28   | 37.17 | 37.16 | 40.48 | 53.07 | 65.27 | 70.97 | 2.48   | 6.23 | 5.02  | 10.36 | 7.39 | 4.93 |



| Sample | Solubility (%) | Mean (n=3) observed degradability at time (h) |       |       |       |       |       |       | Coefficient of variation (%) for degradability at time (h) |      |      |       |      |      |
|--------|----------------|---|-------|-------|-------|-------|-------|-------|--|------|------|-------|------|------|
|        |                | 0   | 3     | 6     | 12    | 24    | 48    | 72    | 3  | 6    | 12   | 24    | 48   | 72   |
| 3582   | 9.88           | 40.21   | 42.82 | 43.70 | 48.81 | 56.80 | 67.42 | 74.56 | 1.18   | 0.51 | 4.69 | 9.26  | 5.62 | 7.24 |
| 3583   | 18.99          | 48.93   | 49.52 | 51.77 | 53.62 | 61.95 | 73.20 | 77.45 | 1.53   | 4.15 | 2.17 | 10.96 | 4.84 | 6.45 |
| 3584   | 14.11          | 49.75   | 55.53 | 55.44 | 58.16 | 66.21 | 76.62 | 81.78 | 1.45   | 0.96 | 4.15 | 6.08  | 3.34 | 6.25 |
| 3585   | 11.44          | 42.14   | 47.53 | 48.17 | 51.71 | 61.64 | 71.21 | 75.97 | 1.55   | 1.78 | 7.07 | 8.24  | 8.03 | 5.07 |
| 3586   | 11.14          | 42.04   | 45.79 | 48.07 | 52.68 | 63.04 | 73.99 | 78.27 | 1.71   | 7.09 | 3.29 | 9.29  | 4.36 | 4.82 |
| 3587   | 19.49          | 51.10   | 53.08 | 53.24 | 56.18 | 64.50 | 75.08 | 78.54 | 2.31   | 3.08 | 1.35 | 8.66  | 4.08 | 4.79 |
| 3588   | 18.04          | 48.34   | 51.28 | 51.80 | 54.21 | 61.59 | 73.04 | 78.09 | 3.82   | 1.02 | 2.75 | 7.27  | 4.95 | 4.59 |
| 3589   | 8.67           | 43.12   | 48.28 | 47.69 | 51.38 | 59.45 | 70.13 | 74.15 | 6.11   | 2.01 | 5.13 | 9.08  | 2.45 | 4.01 |
| 3590   | 16.44          | 31.48   | 34.02 | 34.23 | 38.24 | 46.02 | 55.39 | 61.63 | 2.66   | 3.87 | 5.46 | 13.88 | 5.47 | 5.71 |

**Table A.5** *Fitted curve parameters of dry matter degradability for individual silage samples*

| Sample | Curve parameters <sup>1</sup> |       |        | R <sup>2</sup> | ED06 <sup>3</sup> |
|--------|-------------------------------|-------|--------|----------------|-------------------|
|        | a                             | b     | c      |                |                   |
| 3501   | 31.29                         | 47.00 | 0.0421 | 0.989          | 42.9110           |
| 3502   | 38.42                         | 47.46 | 0.0248 | 0.974          | 43.0487           |
| 3503   | 39.59                         | 42.99 | 0.0318 | 0.976          | 38.7069           |
| 3504   | 31.84                         | 49.16 | 0.0238 | 0.969          | 44.8313           |
| 3505   | 34.14                         | 55.12 | 0.0179 | 0.943          | 50.2549           |
| 3506   | 37.64                         | 49.51 | 0.0209 | 0.963          | 44.9214           |
| 3507   | 35.99                         | 43.33 | 0.0280 | 0.985          | 39.2443           |
| 3508   | 37.52                         | 42.17 | 0.0263 | 0.978          | 38.0627           |
| 3509   | 41.07                         | 44.91 | 0.0259 | 0.985          | 40.5076           |
| 3510   | 36.91                         | 44.81 | 0.0309 | 0.995          | 40.6450           |
| 3511   | 36.99                         | 46.28 | 0.0319 | 0.989          | 41.9852           |
| 3512   | 45.89                         | 36.73 | 0.0404 | 0.993          | 32.6750           |
| 3513   | 48.47                         | 35.64 | 0.0330 | 0.993          | 31.4910           |
| 3514   | 46.95                         | 38.40 | 0.0236 | 0.992          | 34.2074           |
| 3515   | 40.14                         | 55.08 | 0.0167 | 0.989          | 50.1914           |
| 3516   | 35.33                         | 45.54 | 0.0302 | 0.994          | 41.4540           |
| 3517   | 48.52                         | 37.71 | 0.0250 | 0.994          | 33.4549           |
| 3518   | 48.23                         | 35.89 | 0.0257 | 0.998          | 31.7768           |
| 3519   | 49.04                         | 38.14 | 0.0217 | 0.997          | 33.8556           |
| 3520   | 35.67                         | 46.40 | 0.0295 | 0.994          | 42.1811           |
| 3521   | 35.34                         | 64.66 | 0.0129 | 0.988          | 59.3532           |
| 3522   | 44.92                         | 50.38 | 0.0175 | 0.987          | 45.5361           |
| 3523   | 41.03                         | 50.21 | 0.0168 | 0.991          | 45.5591           |
| 3524   | 41.01                         | 45.34 | 0.0208 | 0.992          | 40.9585           |
| 3525   | 40.73                         | 51.54 | 0.0161 | 0.980          | 46.7753           |
| 3526   | 38.71                         | 43.12 | 0.0211 | 0.974          | 38.9141           |
| 3527   | 40.88                         | 52.99 | 0.0130 | 0.968          | 48.1120           |
| 3528   | 43.03                         | 42.16 | 0.0207 | 0.971          | 37.8130           |
| 3529   | 43.16                         | 46.03 | 0.0155 | 0.993          | 41.5262           |
| 3530   | 41.38                         | 47.62 | 0.0207 | 0.990          | 43.0736           |
| 3531   | 47.07                         | 36.45 | 0.0229 | 0.992          | 32.3843           |
| 3532   | 33.07                         | 50.51 | 0.0229 | 0.999          | 46.2692           |
| 3533   | 47.55                         | 45.15 | 0.0135 | 0.994          | 40.5498           |
| 3534   | 25.27                         | 51.03 | 0.0211 | 0.992          | 46.9633           |
| 3535   | 40.37                         | 59.63 | 0.0095 | 0.997          | 54.4505           |
| 3536   | 43.25                         | 43.30 | 0.0198 | 0.999          | 38.9910           |
| 3537   | 49.42                         | 45.09 | 0.0136 | 0.998          | 40.4297           |
| 3538   | 41.08                         | 41.75 | 0.0214 | 0.990          | 37.6503           |
| 3539   | 49.71                         | 50.29 | 0.0090 | 0.990          | 45.2568           |
| 3540   | 45.76                         | 42.39 | 0.0143 | 0.982          | 38.0511           |
| 3541   | 46.53                         | 49.79 | 0.0153 | 0.980          | 44.9572           |
| 3542   | 48.65                         | 51.35 | 0.0102 | 0.965          | 46.2378           |
| 3543   | 44.29                         | 54.30 | 0.0137 | 0.994          | 49.2981           |
| 3544   | 46.97                         | 45.06 | 0.0194 | 0.974          | 40.4244           |
| 3545   | 54.13                         | 45.09 | 0.0137 | 0.986          | 40.1346           |

| Sample | Curve parameters <sup>1</sup> |       |        | R <sup>2</sup> | ED06 <sup>3</sup> |
|--------|-------------------------------|-------|--------|----------------|-------------------|
|        | a                             | b     | c      |                |                   |
| 3546   | 45.72                         | 44.50 | 0.0172 | 0.982          | 39.9574           |
| 3547   | 51.52                         | 48.48 | 0.0138 | 0.985          | 43.4518           |
| 3548   | 44.81                         | 43.78 | 0.0178 | 0.995          | 39.3478           |
| 3549   | 40.03                         | 50.16 | 0.0178 | 0.977          | 45.5386           |
| 3550   | 41.89                         | 45.50 | 0.0298 | 0.988          | 41.1625           |
| 3551   | 34.89                         | 49.72 | 0.0268 | 0.980          | 45.4045           |
| 3552   | 45.20                         | 46.99 | 0.0177 | 0.990          | 42.3262           |
| 3553   | 42.47                         | 45.90 | 0.0252 | 0.981          | 41.4938           |
| 3554   | 39.22                         | 58.48 | 0.0171 | 0.980          | 53.3818           |
| 3555   | 39.77                         | 47.92 | 0.0219 | 0.991          | 43.4405           |
| 3556   | 31.63                         | 49.75 | 0.0284 | 0.991          | 45.5085           |
| 3557   | 48.28                         | 38.80 | 0.0197 | 0.973          | 34.4574           |
| 3558   | 33.59                         | 47.30 | 0.0263 | 0.976          | 43.1582           |
| 3559   | 45.29                         | 42.45 | 0.0200 | 0.965          | 38.0486           |
| 3560   | 51.80                         | 43.77 | 0.0193 | 0.989          | 39.0124           |
| 3561   | 40.70                         | 59.30 | 0.0141 | 0.995          | 54.1278           |
| 3562   | 38.26                         | 49.63 | 0.0209 | 1.000          | 45.1821           |
| 3563   | 43.36                         | 52.58 | 0.0152 | 0.981          | 47.7204           |
| 3564   | 42.84                         | 57.16 | 0.0123 | 0.992          | 52.0757           |
| 3565   | 37.77                         | 62.23 | 0.0132 | 0.994          | 57.0388           |
| 3566   | 35.04                         | 64.96 | 0.0133 | 0.999          | 59.7304           |
| 3567   | 36.59                         | 45.23 | 0.0216 | 0.992          | 41.1197           |
| 3568   | 47.28                         | 47.38 | 0.0158 | 0.994          | 42.6439           |
| 3569   | 37.93                         | 49.80 | 0.0196 | 0.995          | 45.3194           |
| 3570   | 41.77                         | 58.23 | 0.0131 | 0.993          | 53.0747           |
| 3571   | 37.98                         | 41.87 | 0.0280 | 0.987          | 37.8352           |
| 3572   | 41.70                         | 41.34 | 0.0376 | 0.995          | 37.1956           |
| 3573   | 45.93                         | 42.27 | 0.0299 | 0.998          | 37.8745           |
| 3574   | 37.91                         | 47.90 | 0.0238 | 0.998          | 43.5395           |
| 3575   | 35.59                         | 49.15 | 0.0215 | 0.995          | 44.7913           |
| 3576   | 41.90                         | 39.39 | 0.0256 | 0.984          | 35.2891           |
| 3577   | 40.01                         | 40.82 | 0.0274 | 0.983          | 36.7088           |
| 3578   | 41.14                         | 43.12 | 0.0228 | 0.978          | 38.9303           |
| 3579   | 48.52                         | 34.35 | 0.0308 | 0.995          | 30.2984           |
| 3580   | 38.76                         | 37.44 | 0.0313 | 0.988          | 33.6054           |
| 3581   | 32.16                         | 57.71 | 0.0201 | 0.989          | 53.0464           |
| 3582   | 39.89                         | 49.12 | 0.0171 | 0.999          | 44.6103           |
| 3583   | 47.72                         | 45.35 | 0.0156 | 0.990          | 40.6761           |
| 3584   | 50.96                         | 41.76 | 0.0190 | 0.990          | 37.2596           |
| 3585   | 42.82                         | 39.80 | 0.0254 | 0.993          | 35.7434           |
| 3586   | 41.82                         | 42.81 | 0.0276 | 0.998          | 38.5884           |
| 3587   | 50.17                         | 40.65 | 0.0177 | 0.982          | 36.1584           |
| 3588   | 48.24                         | 48.73 | 0.0137 | 0.993          | 43.8867           |
| 3589   | 43.73                         | 39.67 | 0.0211 | 0.990          | 35.5750           |
| 3590   | 31.15                         | 44.94 | 0.0159 | 0.997          | 41.0429           |

<sup>1</sup>a: 'Immediately' degradable fraction, b: potentially degradable fraction, c: rate of degradation. <sup>3</sup>Effectively degraded dry matter at rumen outflow rate (k) of 0.06/h ( $0.9S + ((a-S+b)c)/(c+k)$ )

**Table A.6** *The N solubility and soluble N contents of the individual silage samples.*

| Sample | N solubility (%) | Soluble N content (g/kg DM) |
|--------|------------------|-----------------------------|
| 3501   | 52.4             | 5.51                        |
| 3502   | 50.4             | 5.51                        |
| 3503   | 55.1             | 6.38                        |
| 3504   | 52.8             | 6.33                        |
| 3505   | 50.7             | 6.15                        |
| 3506   | 64.7             | 7.04                        |
| 3507   | 53.7             | 6.78                        |
| 3508   | 58.2             | 6.30                        |
| 3509   | 68.6             | 8.33                        |
| 3510   | 41.1             | 5.12                        |
| 3511   | 48.1             | 5.96                        |
| 3512   | 61.0             | 8.27                        |
| 3513   | 55.2             | 8.25                        |
| 3514   | 69.9             | 10.73                       |
| 3515   | 54.5             | 7.69                        |
| 3516   | 55.1             | 9.16                        |
| 3517   | 62.0             | 8.72                        |
| 3518   | 60.0             | 8.00                        |
| 3519   | 62.6             | 8.88                        |
| 3520   | 66.0             | 11.35                       |
| 3521   | 57.0             | 7.70                        |
| 3522   | 49.6             | 6.80                        |
| 3523   | 70.3             | 11.09                       |
| 3524   | 66.2             | 9.44                        |
| 3525   | 41.9             | 5.49                        |
| 3526   | 55.9             | 7.85                        |
| 3527   | 56.3             | 7.25                        |
| 3528   | 60.7             | 8.38                        |
| 3529   | 65.8             | 8.33                        |
| 3530   | 56.8             | 6.65                        |
| 3531   | 62.7             | 9.13                        |
| 3532   | 60.5             | 7.53                        |
| 3533   | 55.3             | 7.22                        |
| 3534   | 43.7             | 4.96                        |
| 3535   | 46.6             | 4.75                        |
| 3536   | 55.8             | 7.16                        |
| 3537   | 54.7             | 6.75                        |
| 3538   | 62.0             | 8.07                        |
| 3539   | 59.4             | 8.37                        |
| 3540   | 69.1             | 9.04                        |
| 3541   | 66.2             | 7.46                        |
| 3542   | 55.0             | 6.87                        |
| 3543   | 66.1             | 7.74                        |
| 3544   | 59.6             | 8.00                        |
| 3545   | 67.0             | 8.90                        |
| 3546   | 52.2             | 6.63                        |

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| Sample | N solubility (%) | Soluble N content (g/kg DM) |
|--------|------------------|-----------------------------|
| 3547   | 68.4             | 9.01                        |
| 3548   | 47.8             | 5.89                        |
| 3549   | 52.1             | 6.97                        |
| 3550   | 44.3             | 5.52                        |
| 3551   | 36.1             | 4.87                        |
| 3552   | 46.4             | 6.48                        |
| 3553   | 53.2             | 7.14                        |
| 3554   | 44.9             | 5.72                        |
| 3555   | 55.8             | 7.54                        |
| 3556   | 39.0             | 5.12                        |
| 3557   | 57.3             | 7.53                        |
| 3558   | 33.7             | 4.60                        |
| 3559   | 55.6             | 6.75                        |
| 3560   | 66.4             | 8.82                        |
| 3561   | 58.3             | 8.04                        |
| 3562   | 58.4             | 9.59                        |
| 3563   | 66.0             | 8.80                        |
| 3564   | 50.0             | 7.78                        |
| 3565   | 40.1             | 5.56                        |
| 3566   | 29.8             | 3.61                        |
| 3567   | 31.9             | 4.09                        |
| 3568   | 57.2             | 7.45                        |
| 3569   | 33.1             | 3.81                        |
| 3570   | 43.0             | 5.69                        |
| 3571   | 36.8             | 4.68                        |
| 3572   | 53.4             | 8.15                        |
| 3573   | 49.7             | 6.71                        |
| 3574   | 29.9             | 4.18                        |
| 3575   | 35.9             | 4.93                        |
| 3576   | 46.8             | 6.09                        |
| 3577   | 45.0             | 5.79                        |
| 3578   | 45.2             | 6.07                        |
| 3579   | 54.2             | 7.26                        |
| 3580   | 61.1             | 9.76                        |
| 3581   | 62.3             | 11.16                       |
| 3582   | 50.6             | 7.58                        |
| 3583   | 60.4             | 8.53                        |
| 3584   | 63.2             | 9.18                        |
| 3585   | 57.3             | 7.81                        |
| 3586   | 58.8             | 7.68                        |
| 3587   | 60.1             | 8.66                        |
| 3588   | 72.5             | 9.67                        |
| 3589   | 58.4             | 8.12                        |
| 3590   | 54.2             | 8.33                        |

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**Table A.7** *The mean N degradability (%) at different time periods (h) of the individual samples of maize silage used in the study.*

| Sample | 0     | 3     | 6     | 12    | 24    | 48    | 72    |
|--------|-------|-------|-------|-------|-------|-------|-------|
| 3501   | 67.74 | 72.00 | 69.85 | 70.29 | 76.72 | 82.29 | 83.79 |
| 3502   | 63.16 | 62.96 | 60.30 | 64.86 | 70.15 | 78.81 | 79.07 |
| 3503   | 74.20 | 75.04 | 67.88 | 66.62 | 72.68 | 78.03 | 78.62 |
| 3504   | 57.51 | 62.08 | 72.86 | 61.75 | 65.39 | 68.61 | 72.71 |
| 3505   | 63.30 | 62.38 | 58.91 | 62.25 | 77.75 | 78.43 | 77.90 |
| 3506   | 65.20 | 66.12 | 72.58 | 71.39 | 72.93 | 78.43 | 76.82 |
| 3507   | 57.73 | 61.52 | 65.95 | 65.35 | 68.16 | 73.39 | 77.66 |
| 3508   | 69.08 | 69.06 | 70.67 | 69.70 | 78.62 | 77.49 | 74.49 |
| 3509   | 63.16 | 69.59 | 70.71 | 72.44 | 75.91 | 84.50 | 82.14 |
| 3510   | 71.02 | 76.92 | 70.08 | 71.91 | 65.26 | 78.96 | 77.66 |
| 3511   | 60.54 | 77.33 | 76.78 | 79.31 | 78.72 | 80.89 | 81.88 |
| 3512   | 59.26 | 62.87 | 62.24 | 73.26 | 71.32 | 76.93 | 77.46 |
| 3513   | 82.90 | 79.27 | 76.41 | 75.60 | 83.49 | 81.52 | 83.55 |
| 3514   | 72.41 | 78.83 | 77.52 | 79.35 | 80.73 | 83.65 | 86.03 |
| 3515   | 73.91 | 76.25 | 78.67 | 75.11 | 76.53 | 79.15 | 81.90 |
| 3516   | 57.68 | 70.58 | 70.18 | 73.79 | 77.41 | 77.15 | 77.89 |
| 3517   | 74.11 | 80.03 | 76.89 | 78.52 | 82.08 | 85.04 | 83.92 |
| 3518   | 68.48 | 71.14 | 72.58 | 72.96 | 75.81 | 78.31 | 76.43 |
| 3519   | 74.07 | 78.18 | 79.46 | 78.32 | 81.57 | 76.43 | 79.88 |
| 3520   | 76.90 | 80.38 | 71.49 | 79.91 | 80.93 | 81.00 | 82.02 |
| 3521   | 77.00 | 77.56 | 76.01 | 72.30 | 74.75 | 68.67 | 77.07 |
| 3522   | 79.75 | 84.22 | 87.05 | 85.28 | 84.92 | 84.82 | 89.47 |
| 3523   | 85.41 | 90.49 | 89.09 | 89.33 | 89.67 | 86.74 | 91.15 |
| 3524   | 80.31 | 74.05 | 78.57 | 79.59 | 80.82 | 74.37 | 86.22 |
| 3525   | 79.09 | 82.93 | 83.51 | 82.45 | 81.47 | 76.66 | 81.70 |
| 3526   | 69.48 | 63.04 | 72.78 | 69.32 | 73.90 | 73.19 | 76.67 |
| 3527   | 64.01 | 62.13 | 63.90 | 66.93 | 70.65 | 71.49 | 72.64 |
| 3528   | 82.22 | 85.57 | 88.33 | 90.29 | 90.23 | 91.90 | 90.26 |
| 3529   | 73.72 | 73.69 | 76.17 | 61.28 | 71.39 | 79.63 | 84.51 |
| 3530   | 79.90 | 82.85 | 81.98 | 80.08 | 83.12 | 84.42 | 89.34 |
| 3531   | 86.49 | 90.83 | 92.90 | 94.08 | 89.56 | 91.03 | 91.43 |
| 3532   | 77.61 | 86.32 | 89.21 | 86.80 | 89.96 | 90.45 | 84.35 |
| 3533   | 91.01 | 93.93 | 93.13 | 85.96 | 89.37 | 93.64 | 88.44 |
| 3534   | 88.11 | 87.18 | 88.25 | 84.78 | 85.63 | 84.13 | 80.64 |
| 3535   | 90.49 | 87.40 | 87.75 | 84.98 | 85.23 | 83.64 | 87.82 |
| 3536   | 92.20 | 96.37 | 97.29 | 89.38 | 92.81 | 93.05 | 89.93 |
| 3537   | 94.69 | 92.47 | 94.19 | 87.58 | 90.20 | 92.11 | 88.04 |
| 3538   | 89.18 | 88.18 | 93.29 | 94.12 | 93.90 | 90.61 | 87.71 |
| 3539   | 90.58 | 90.97 | 94.00 | 90.64 | 88.22 | 92.72 | 90.23 |
| 3540   | 88.49 | 93.70 | 92.60 | 89.20 | 90.75 | 86.62 | 89.22 |
| 3541   | 83.96 | 88.80 | 88.24 | 85.99 | 85.94 | 91.55 | 89.90 |
| 3542   | 91.23 | 85.61 | 80.20 | 83.22 | 72.34 | 88.72 | 81.91 |
| 3543   | 91.20 | 90.80 | 85.28 | 86.99 | 85.27 | 87.98 | 89.59 |
| 3544   | 82.92 | 87.62 | 78.00 | 81.66 | 80.58 | 85.33 | 86.14 |
| 3545   | 82.62 | 83.49 | 83.37 | 90.61 | 87.93 | 90.59 | 89.76 |
| 3546   | 90.16 | 77.98 | 85.32 | 75.10 | 85.62 | 89.62 | 88.86 |

| Sample | 0     | 3     | 6     | 12    | 24    | 48    | 72    |
|--------|-------|-------|-------|-------|-------|-------|-------|
| 3547   | 87.92 | 86.79 | 89.07 | 86.24 | 91.14 | 91.64 | 91.54 |
| 3548   | 90.17 | 84.60 | 84.69 | 87.95 | 77.39 | 89.70 | 82.08 |
| 3549   | 72.13 | 71.70 | 77.11 | 78.78 | 76.21 | 88.00 | 82.40 |
| 3550   | 75.47 | 79.75 | 77.33 | 75.06 | 78.49 | 85.79 | 79.78 |
| 3551   | 60.45 | 57.33 | 60.90 | 58.87 | 73.86 | 83.65 | 82.85 |
| 3552   | 71.40 | 74.68 | 76.43 | 74.76 | 75.88 | 80.21 | 85.09 |
| 3553   | 70.16 | 71.36 | 68.49 | 69.26 | 70.67 | 76.03 | 75.74 |
| 3554   | 69.37 | 70.60 | 72.47 | 67.27 | 69.91 | 77.64 | 77.50 |
| 3555   | 69.94 | 69.53 | 69.37 | 74.02 | 74.29 | 81.76 | 79.65 |
| 3556   | 59.68 | 66.72 | 65.65 | 64.76 | 71.14 | 76.90 | 76.06 |
| 3557   | 66.49 | 76.45 | 68.47 | 60.02 | 73.21 | 78.42 | 77.68 |
| 3558   | 65.39 | 62.84 | 66.69 | 64.21 | 63.54 | 71.78 | 74.07 |
| 3559   | 71.14 | 70.57 | 65.96 | 68.00 | 69.85 | 77.23 | 75.96 |
| 3560   | 81.81 | 73.56 | 77.81 | 79.80 | 75.58 | 82.10 | 83.98 |
| 3561   | 68.96 | 71.06 | 64.93 | 74.78 | 77.87 | 80.88 | 82.25 |
| 3562   | 63.16 | 71.23 | 72.43 | 74.81 | 77.88 | 80.88 | 83.38 |
| 3563   | 71.21 | 75.41 | 83.03 | 82.73 | 79.65 | 80.37 | 82.63 |
| 3564   | 67.81 | 71.82 | 65.30 | 73.55 | 71.65 | 76.75 | 79.47 |
| 3565   | 60.71 | 54.77 | 67.01 | 64.13 | 66.42 | 71.22 | 72.78 |
| 3566   | 50.17 | 51.61 | 52.10 | 65.87 | 62.87 | 71.29 | 74.47 |
| 3567   | 69.28 | 59.23 | 63.98 | 66.00 | 69.51 | 73.42 | 76.20 |
| 3568   | 71.42 | 73.35 | 78.90 | 78.55 | 78.44 | 81.31 | 82.31 |
| 3569   | 44.47 | 59.53 | 68.68 | 62.96 | 66.79 | 73.05 | 72.74 |
| 3570   | 64.97 | 64.73 | 70.37 | 66.96 | 69.23 | 75.31 | 77.54 |
| 3571   | 59.49 | 70.57 | 53.82 | 59.88 | 67.26 | 77.42 | 74.81 |
| 3572   | 57.50 | 66.84 | 60.59 | 62.21 | 79.96 | 86.85 | 74.96 |
| 3573   | 61.71 | 76.40 | 72.03 | 74.23 | 81.75 | 87.36 | 87.37 |
| 3574   | 53.20 | 56.69 | 53.05 | 55.46 | 62.28 | 79.31 | 77.05 |
| 3575   | 58.88 | 58.89 | 57.11 | 65.03 | 71.06 | 77.66 | 80.09 |
| 3576   | 68.47 | 67.97 | 60.87 | 76.71 | 74.22 | 80.37 | 78.46 |
| 3577   | 64.74 | 67.09 | 55.54 | 56.38 | 71.19 | 79.49 | 78.82 |
| 3578   | 68.38 | 68.58 | 62.85 | 61.43 | 74.33 | 83.02 | 79.44 |
| 3579   | 70.46 | 72.80 | 96.79 | 88.09 | 80.23 | 86.57 | 84.19 |
| 3580   | 64.83 | 70.73 | 82.79 | 75.03 | 77.65 | 83.43 | 82.21 |
| 3581   | 69.08 | 77.34 | 71.81 | 70.20 | 75.93 | 79.69 | 79.21 |
| 3582   | 71.60 | 73.66 | 72.67 | 75.68 | 77.34 | 78.70 | 82.18 |
| 3583   | 68.91 | 80.83 | 74.69 | 69.29 | 76.33 | 78.52 | 84.00 |
| 3584   | 75.72 | 76.13 | 77.67 | 75.12 | 76.28 | 79.71 | 82.54 |
| 3585   | 67.81 | 76.46 | 70.85 | 71.37 | 76.23 | 78.00 | 81.10 |
| 3586   | 69.22 | 75.62 | 77.60 | 72.46 | 76.79 | 81.58 | 84.74 |
| 3587   | 76.68 | 74.53 | 78.11 | 71.56 | 75.86 | 80.91 | 79.97 |
| 3588   | 83.08 | 84.35 | 83.55 | 80.79 | 81.42 | 87.71 | 86.83 |
| 3589   | 75.19 | 77.52 | 73.31 | 77.18 | 73.17 | 79.85 | 78.81 |
| 3590   | 70.81 | 73.85 | 68.73 | 69.71 | 69.99 | 72.56 | 78.09 |

**Table A.8** *Parameters describing organic matter degradability for the individual silages*

| Sample | a     | b     | c      |
|--------|-------|-------|--------|
| 3501   | 32.21 | 46.17 | 0.0442 |
| 3502   | 37.29 | 48.13 | 0.0251 |
| 3503   | 38.77 | 43.69 | 0.0318 |
| 3504   | 30.89 | 49.61 | 0.0242 |
| 3505   | 32.99 | 56.35 | 0.0178 |
| 3506   | 36.57 | 50.64 | 0.0208 |
| 3507   | 34.84 | 44.29 | 0.0282 |
| 3508   | 36.78 | 42.36 | 0.0269 |
| 3509   | 39.84 | 45.46 | 0.0269 |
| 3510   | 35.68 | 45.79 | 0.0305 |
| 3511   | 36.57 | 46.78 | 0.0322 |
| 3512   | 45.27 | 37.21 | 0.0404 |
| 3513   | 47.98 | 36.04 | 0.0328 |
| 3514   | 46.35 | 39.12 | 0.0230 |
| 3515   | 39.17 | 56.16 | 0.0167 |
| 3516   | 34.52 | 46.22 | 0.0301 |
| 3517   | 47.79 | 38.39 | 0.0248 |
| 3518   | 48.11 | 36.06 | 0.0255 |
| 3519   | 48.44 | 38.46 | 0.0218 |
| 3520   | 34.03 | 47.60 | 0.0295 |
| 3521   | 33.90 | 66.10 | 0.0130 |
| 3522   | 43.54 | 52.13 | 0.0172 |
| 3523   | 39.38 | 52.24 | 0.0166 |
| 3524   | 39.66 | 44.16 | 0.0235 |
| 3525   | 38.05 | 53.33 | 0.0165 |
| 3526   | 37.35 | 44.41 | 0.0208 |
| 3527   | 39.35 | 56.10 | 0.0123 |
| 3528   | 41.48 | 40.77 | 0.0244 |
| 3529   | 41.92 | 47.70 | 0.0152 |
| 3530   | 40.81 | 59.19 | 0.0157 |
| 3531   | 46.05 | 37.19 | 0.0230 |
| 3532   | 32.00 | 51.27 | 0.0231 |
| 3533   | 46.47 | 44.03 | 0.0147 |
| 3534   | 24.57 | 50.28 | 0.0226 |
| 3535   | 39.73 | 60.27 | 0.0094 |
| 3536   | 42.34 | 43.80 | 0.0202 |
| 3537   | 48.69 | 46.11 | 0.0134 |
| 3538   | 39.32 | 42.74 | 0.0219 |
| 3539   | 48.89 | 51.11 | 0.0089 |
| 3540   | 44.80 | 42.22 | 0.0150 |
| 3541   | 45.94 | 50.44 | 0.0151 |
| 3542   | 48.59 | 51.41 | 0.0102 |
| 3543   | 43.65 | 54.11 | 0.1410 |
| 3544   | 46.00 | 45.97 | 0.0194 |
| 3545   | 54.09 | 44.77 | 0.0140 |
| 3546   | 45.49 | 45.91 | 0.0167 |



| Sample | a     | b     | c      |
|--------|-------|-------|--------|
| 3547   | 50.99 | 49.01 | 0.0138 |
| 3548   | 43.83 | 44.19 | 0.0183 |
| 3549   | 39.04 | 50.87 | 0.0179 |
| 3550   | 41.34 | 46.03 | 0.0299 |
| 3551   | 33.19 | 50.94 | 0.0272 |
| 3552   | 44.52 | 48.02 | 0.0175 |
| 3553   | 41.45 | 46.36 | 0.0261 |
| 3554   | 38.01 | 59.55 | 0.0174 |
| 3555   | 37.64 | 49.43 | 0.0224 |
| 3556   | 30.53 | 50.64 | 0.0288 |
| 3557   | 47.48 | 39.34 | 0.0200 |
| 3558   | 32.50 | 48.24 | 0.0262 |
| 3559   | 44.85 | 43.54 | 0.0195 |
| 3560   | 51.19 | 44.57 | 0.0191 |
| 3561   | 39.61 | 60.39 | 0.0141 |
| 3562   | 37.07 | 50.19 | 0.0214 |
| 3563   | 42.19 | 53.78 | 0.0152 |
| 3564   | 41.13 | 58.87 | 0.0124 |
| 3565   | 36.17 | 63.83 | 0.0134 |
| 3566   | 33.34 | 66.66 | 0.0135 |
| 3567   | 35.02 | 47.00 | 0.0212 |
| 3568   | 46.28 | 48.06 | 0.0161 |
| 3569   | 37.29 | 51.26 | 0.0188 |
| 3570   | 40.48 | 59.52 | 0.0132 |
| 3571   | 36.15 | 43.32 | 0.0286 |
| 3572   | 40.83 | 42.01 | 0.0382 |
| 3573   | 44.96 | 43.11 | 0.0302 |
| 3574   | 36.61 | 48.53 | 0.0248 |
| 3575   | 33.93 | 50.66 | 0.0215 |
| 3576   | 40.35 | 40.57 | 0.0259 |
| 3577   | 38.51 | 41.14 | 0.0290 |
| 3578   | 39.68 | 45.29 | 0.0219 |
| 3579   | 47.50 | 34.70 | 0.0312 |
| 3580   | 37.53 | 37.92 | 0.0315 |
| 3581   | 30.40 | 52.94 | 0.0203 |
| 3582   | 38.86 | 50.30 | 0.0169 |
| 3583   | 47.01 | 44.91 | 0.0161 |
| 3584   | 50.35 | 48.44 | 0.0147 |
| 3585   | 41.84 | 39.48 | 0.0278 |
| 3586   | 40.57 | 43.56 | 0.0280 |
| 3587   | 49.49 | 40.45 | 0.0185 |
| 3588   | 47.21 | 49.89 | 0.0135 |
| 3589   | 42.54 | 40.31 | 0.0214 |
| 3590   | 29.75 | 45.86 | 0.0161 |

**Table A.9** Fitted parameters to describe the rate of degradation of starch for each sample of silage

| Sample | Starch degradability at different time periods (h) |      |      |      |      |       |       | Fitted value |      |       | SE   |      |        | R <sup>2</sup> |
|--------|--|------|------|------|------|-------|-------|--------------|------|-------|------|------|--------|----------------|
|        | 0  | 3    | 6    | 12   | 24   | 48    | 72    | a            | b    | c     | a    | b    | c      |                |
| 3501   | 40.9   | 63.3 | 53.4 | 81.1 | 89.4 | 95.5  | 98.1  | 42.9         | 54.7 | 0.080 | 6.20 | 7.52 | 0.0296 | 0.93           |
| 3502   | 48.5   | 65.6 | 79.5 | 92.1 | 90.9 | 96.8  | 99.0  | 48.0         | 48.5 | 0.169 | 2.89 | 3.26 | 0.0267 | 0.984          |
| 3503   | 49.3   | 67.4 | 83.5 | 90.0 | 93.6 | 96.8  | 100.0 | 49.1         | 47.9 | 0.179 | 2.62 | 2.95 | 0.0258 | 0.985          |
| 3504   | 58.5   | 58.6 | 76.6 | 88.2 | 92.4 | 97.0  | 98.0  | 55.1         | 42.7 | 0.099 | 4.18 | 4.90 | 0.0292 | 0.95           |
| 3505   | 69.2   | 60.0 | 74.4 | 84.9 | 93.5 | 97.9  | 99.1  | 67.5         | 32.6 | 0.059 | 1.54 | 2.04 | 0.0106 | 0.985          |
| 3506   | 73.9   | 63.0 | 75.5 | 87.9 | 95.4 | 98.2  | 98.2  | 70.9         | 28.8 | 0.062 | 2.63 | 3.42 | 0.0211 | 0.948          |
| 3507   | 72.5   | 53.7 | 66.8 | 83.5 | 92.6 | 97.3  | 98.1  | 72.2         | 27.0 | 0.053 | 0.75 | 1.04 | 0.0060 | 0.995          |
| 3508   | 52.9   | 64.0 | 76.3 | 85.4 | 93.9 | 97.6  | 98.9  | 52.7         | 45.4 | 0.109 | 1.17 | 1.36 | 0.0082 | 0.997          |
| 3509   | 81.6   | 61.2 | 71.7 | 84.8 | 93.5 | 97.5  | 100.0 | 80.0         | 20.0 | 0.039 |      |      |        | 0.948          |
| 3510   | 41.4   | 56.0 | 68.5 | 78.8 | 93.2 | 98.8  | 99.3  | 41.9         | 57.3 | 0.094 | 1.19 | 1.40 | 0.0059 | 0.998          |
| 3511   | 51.3   | 44.1 | 68.7 | 86.1 | 96.2 | 99.5  | 100.0 | 50.4         | 50.2 | 0.093 | 2.25 | 2.65 | 0.0117 | 0.986          |
| 3512   | 52.9   | 61.3 | 77.5 | 89.1 | 96.0 | 98.8  | 99.9  | 51.2         | 48.4 | 0.117 | 2.40 | 2.77 | 0.0166 | 0.987          |
| 3513   | 82.4   | 68.8 | 73.9 | 85.5 | 93.0 | 99.2  | 99.6  | 82.0         | 18.0 | 0.038 |      |      |        | 0.939          |
| 3514   | 80.8   | 59.0 | 71.0 | 81.8 | 93.0 | 98.8  | 99.5  | 80.0         | 20.0 | 0.036 |      |      |        | 0.887          |
| 3515   | 83.8   | 59.3 | 67.8 | 77.8 | 91.5 | 97.3  | 99.1  | 82.4         | 15.0 | 0.031 |      |      |        | 0.659          |
| 3516   | 75.7   | 54.4 | 68.4 | 86.9 | 93.1 | 96.6  | 99.0  | 75.7         | 23.3 | 0.055 | 0.68 | 0.91 | 0.0055 | 0.997          |
| 3517   | 89.4   | 64.0 | 75.2 | 85.3 | 95.1 | 98.6  | 99.8  | 85.0         | 15.0 | 0.034 |      |      |        | 0.686          |
| 3518   | 52.8   | 62.7 | 70.8 | 81.5 | 95.1 | 99.0  | 99.7  | 52.4         | 47.8 | 0.082 | 0.80 | 0.97 | 0.0045 | 0.998          |
| 3519   | 53.2   | 58.7 | 67.5 | 79.2 | 90.5 | 97.9  | 99.1  | 51.9         | 47.9 | 0.067 | 1.04 | 1.31 | 0.0052 | 0.997          |
| 3520   | 42.8   | 54.6 | 65.0 | 83.6 | 94.1 | 98.2  | 100.0 | 41.5         | 58.3 | 0.095 | 1.65 | 1.95 | 0.0082 | 0.996          |
| 3521   | 54.8   | 71.3 | 86.4 | 92.8 | 96.3 | 97.4  | 100.0 | 54.4         | 43.8 | 0.189 | 1.95 | 2.19 | 0.0219 | 0.991          |
| 3522   | 69.7   | 54.5 | 77.4 | 86.2 | 95.5 | 100.0 | 100.0 | 68.0         | 32.0 | 0.071 |      |      |        | 0.989          |
| 3523   | 68.9   | 60.1 | 85.4 | 93.7 | 98.6 | 100.0 | 100.0 | 68.8         | 31.3 | 0.129 | 0.24 | 0.28 | 0.0027 | 0.999          |
| 3524   | 75.7   | 75.8 | 85.3 | 94.4 | 98.3 | 99.3  | 99.9  | 73.0         | 27.0 | 0.100 | 2.51 | 2.95 | 0.0276 | 0.955          |
| 3525   | 43.9   | 59.4 | 73.5 | 90.8 | 97.4 | 98.9  | 99.9  | 42.7         | 57.2 | 0.133 | 1.70 | 1.94 | 0.0109 | 0.996          |
| 3526   | 81.2   | 72.6 | 85.7 | 92.3 | 98.7 | 100.0 | 100.0 | 75.0         | 25.0 | 0.082 | 4.31 | 5.36 | 0.0422 | 0.84           |
| 3527   | 58.6   | 60.3 | 83.5 | 93.3 | 97.4 | 99.4  | 100.0 | 55.0         | 45.3 | 0.127 | 5.15 | 5.90 | 0.0405 | 0.937          |
| 3528   | 48.9   | 61.5 | 78.2 | 86.7 | 97.4 | 98.8  | 99.8  | 48.2         | 51.3 | 0.125 | 2.03 | 2.33 | 0.0139 | 0.992          |
| 3529   | 89.1   | 72.5 | 83.4 | 94.1 | 97.5 | 99.5  | 100.0 | 85.0         | 15.0 | 0.054 |      |      |        | 0.735          |
| 3530   | 67.7   | 58.7 | 76.4 | 91.4 | 98.1 | 99.7  | 99.9  | 66.0         | 34.0 | 0.093 |      |      |        | 0.968          |
| 3531   | 99.1   | 63.7 | 78.2 | 84.3 | 95.8 | 98.4  | 99.8  | 88.6         | 11.0 | 0.021 |      |      |        | 0.236          |
| 3532   | 38.8   | 51.3 | 64.7 | 83.1 | 95.6 | 98.7  | 100.0 | 37.0         | 63.2 | 0.101 |      |      |        | 0.996          |
| 3533   | 78.4   | 85.7 | 96.2 | 95.5 | 99.5 | 100.0 | 100.0 | 78.0         | 21.6 | 0.198 | 2.07 | 2.32 | 0.0492 | 0.957          |
| 3534   | 62.8   | 78.6 | 85.3 | 95.8 | 98.1 | 99.4  | 100.0 | 63.0         | 36.5 | 0.173 | 0.98 | 1.10 | 0.0122 | 0.996          |

| Sample | Starch degradability at different time periods (h) |      |      |      |       |      |       | Fitted value |      |       | SE   |      |        | R <sup>2</sup> |
|--------|--|------|------|------|-------|------|-------|--------------|------|-------|------|------|--------|----------------|
|        | 0  | 3    | 6    | 12   | 24    | 48   | 72    | a            | b    | c     | a    | b    | c      |                |
| 3535   | 38.9   | 64.2 | 65.3 | 74.6 | 88.2  | 98.4 | 99.8  | 44.3         | 54.5 | 0.079 | 4.67 | 5.68 | 0.0221 | 0.958          |
| 3536   | 54.1   | 67.0 | 75.0 | 91.1 | 95.9  | 99.0 | 99.9  | 53.5         | 46.0 | 0.119 | 1.63 | 1.88 | 0.0120 | 0.993          |
| 3537   | 59.4   | 68.8 | 79.9 | 88.6 | 97.2  | 99.6 | 100.0 | 58.9         | 41.1 | 0.109 | 0.98 | 1.13 | 0.0076 | 0.997          |
| 3538   | 32.4   | 59.1 | 75.1 | 86.4 | 96.8  | 99.1 | 99.9  | 33.1         | 65.6 | 0.160 | 1.72 | 1.94 | 0.0112 | 0.997          |
| 3539   | 54.7   | 62.7 | 81.0 | 88.2 | 94.3  | 98.1 | 99.3  | 53.3         | 45.0 | 0.124 | 3.04 | 3.49 | 0.0236 | 0.978          |
| 3540   | 51.4   | 55.4 | 71.0 | 84.9 | 95.6  | 98.2 | 99.5  | 48.4         | 51.5 | 0.093 | 3.00 | 3.55 | 0.0166 | 0.981          |
| 3541   | 51.5   | 59.3 | 65.8 | 83.1 | 96.1  | 98.2 | 100.0 | 49.4         | 51.2 | 0.085 |      |      |        | 0.987          |
| 3542   | 80.1   | 62.8 | 72.9 | 83.4 | 96.2  | 99.2 | 100.0 | 73.0         | 27.0 | 0.049 |      |      |        | 0.806          |
| 3543   | 50.5   | 57.3 | 67.2 | 86.5 | 95.0  | 98.0 | 100.0 | 47.9         | 52.1 | 0.092 | 2.81 | 3.34 | 0.0153 | 0.984          |
| 3544   | 52.2   | 63.5 | 83.8 | 87.6 | 96.3  | 99.0 | 99.4  | 51.3         | 47.4 | 0.141 | 3.47 | 3.95 | 0.0282 | 0.973          |
| 3545   | 77.5   | 55.7 | 72.0 | 85.2 | 94.4  | 99.2 | 100.0 | 71.0         | 29.0 | 0.052 |      |      |        | 0.856          |
| 3546   | 57.5   | 59.6 | 70.6 | 85.1 | 93.4  | 99.5 | 100.0 | 54.0         | 46.0 | 0.080 |      |      |        | 0.981          |
| 3547   | 54.4   | 63.2 | 76.2 | 85.0 | 94.6  | 98.7 | 99.8  | 53.8         | 45.6 | 0.098 | 1.44 | 1.69 | 0.0093 | 0.991          |
| 3548   | 46.7   | 63.4 | 71.6 | 87.5 | 94.4  | 98.1 | 99.6  | 47.0         | 51.7 | 0.118 | 1.31 | 1.51 | 0.0085 | 0.997          |
| 3549   | 45.9   | 56.3 | 70.8 | 89.0 | 95.1  | 98.4 | 100.0 | 43.9         | 55.7 | 0.114 | 2.63 | 3.05 | 0.0155 | 0.988          |
| 3550   | 63.7   | 57.0 | 75.7 | 82.9 | 96.2  | 99.2 | 100.0 | 58.4         | 43.0 | 0.075 |      |      |        | 0.925          |
| 3551   | 42.5   | 63.4 | 65.4 | 71.3 | 100.0 | 97.5 | 100.0 | 45.0         | 55.0 | 0.082 |      |      |        | 0.942          |
| 3552   | 79.7   | 77.6 | 86.9 | 88.4 | 94.1  | 98.3 | 99.4  | 78.1         | 21.7 | 0.055 | 2.00 | 2.72 | 0.0203 | 0.945          |
| 3553   | 51.4   | 79.1 | 80.3 | 85.5 | 93.6  | 97.7 | 99.5  | 54.1         | 41.7 | 0.188 | 5.21 | 5.85 | 0.0615 | 0.928          |
| 3554   | 59.0   | 70.8 | 75.8 | 78.1 | 91.9  | 97.8 | 99.3  | 61.4         | 38.2 | 0.063 | 2.37 | 3.05 | 0.0144 | 0.976          |
| 3555   | 52.0   | 76.8 | 81.3 | 85.0 | 96.0  | 98.6 | 99.6  | 54.7         | 42.7 | 0.161 | 4.40 | 4.97 | 0.0443 | 0.949          |
| 3556   | 40.2   | 58.6 | 69.5 | 73.6 | 92.8  | 97.2 | 99.2  | 42.8         | 55.6 | 0.088 | 3.45 | 4.12 | 0.0172 | 0.979          |
| 3557   | 87.2   | 89.8 | 88.5 | 93.2 | 98.9  | 98.9 | 99.8  | 86.7         | 13.5 | 0.059 | 1.29 | 1.71 | 0.0216 | 0.943          |
| 3558   | 50.1   | 71.7 | 72.7 | 77.6 | 93.8  | 97.6 | 98.9  | 54.4         | 44.0 | 0.086 | 4.35 | 5.22 | 0.0269 | 0.947          |
| 3559   | 82.4   | 88.5 | 87.3 | 90.1 | 98.9  | 98.1 | 99.4  | 83.0         | 16.6 | 0.067 | 1.87 | 2.36 | 0.0268 | 0.926          |
| 3560   | 86.9   | 88.1 | 89.1 | 95.2 | 97.9  | 98.9 | 99.8  | 85.9         | 13.9 | 0.071 | 1.03 | 1.29 | 0.0182 | 0.967          |
| 3561   | 51.1   | 83.5 | 82.9 | 92.1 | 97.4  | 99.5 | 99.2  | 52.6         | 44.7 | 0.269 | 4.69 | 5.22 | 0.0732 | 0.949          |
| 3562   | 57.0   | 73.2 | 73.6 | 83.7 | 94.5  | 98.9 | 99.5  | 59.2         | 40.3 | 0.085 | 2.51 | 3.01 | 0.0169 | 0.978          |
| 3563   | 82.0   | 84.6 | 88.8 | 86.9 | 97.9  | 99.0 | 99.4  | 81.9         | 18.4 | 0.054 | 2.01 | 2.77 | 0.0239 | 0.923          |
| 3564   | 87.1   | 91.3 | 89.7 | 92.2 | 98.6  | 99.2 | 99.7  | 87.4         | 12.8 | 0.056 | 1.34 | 1.81 | 0.0231 | 0.931          |
| 3565   | 72.4   | 72.3 | 71.9 | 78.7 | 94.1  | 99.0 | 98.3  | 68.0         | 32.0 | 0.048 |      |      |        | 0.928          |
| 3566   | 41.2   | 78.7 | 80.2 | 85.7 | 93.8  | 98.7 | 99.5  | 74.5         | 26.2 | 0.050 | 0.74 | 1.07 | 0.0060 | 0.994          |
| 3567   | 37.8   | 81.5 | 81.1 | 89.3 | 96.5  | 97.5 | 99.4  | 73.8         | 25.3 | 0.080 | 1.58 | 1.92 | 0.0161 | 0.978          |
| 3568   | 78.5   | 87.4 | 87.0 | 90.3 | 96.6  | 98.7 | 99.1  | 80.1         | 18.9 | 0.081 | 1.69 | 2.04 | 0.0234 | 0.956          |
| 3569   | 74.2   | 80.5 | 84.1 | 84.0 | 96.1  | 98.8 | 99.2  | 75.1         | 25.0 | 0.059 | 1.99 | 2.63 | 0.0180 | 0.959          |

| Sample | Starch degradability at different time periods (h) |      |      |      |      |      |      | Fitted value |      |       | SE   |      |        | R <sup>2</sup> |
|--------|--|------|------|------|------|------|------|--------------|------|-------|------|------|--------|----------------|
|        | 0  | 3    | 6    | 12   | 24   | 48   | 72   | a            | b    | c     | a    | b    | c      |                |
| 3570   | 54.7   | 79.5 | 87.0 | 89.2 | 93.4 | 97.2 | 99.1 | 77.5         | 21.0 | 0.069 | 1.42 | 1.79 | 0.0163 | 0.972          |
| 3571   | 83.2   | 91.3 | 84.0 | 85.6 | 96.0 | 98.1 | 98.9 | 84.4         | 16.0 | 0.034 |      |      |        | 0.756          |
| 3572   | 95.9   | 75.7 | 77.4 | 83.7 | 93.8 | 98.5 | 99.5 | 69.8         | 30.7 | 0.056 | 1.91 | 1.85 | 0.0104 | 0.99           |
| 3573   | 76.2   | 81.0 | 81.0 | 93.0 | 98.2 | 99.1 | 99.6 | 75.1         | 25.1 | 0.083 | 2.09 | 2.51 | 0.0221 | 0.961          |
| 3574   | 64.3   | 77.8 | 80.1 | 85.8 | 90.9 | 96.0 | 99.4 | 67.0         | 30.1 | 0.088 | 2.62 | 3.12 | 0.0240 | 0.959          |
| 3575   | 82.7   | 77.7 | 79.0 | 89.9 | 96.0 | 98.1 | 99.6 | 78.1         | 23.0 | 0.046 | 3.16 | 4.86 | 0.0290 | 0.874          |
| 3576   | 87.8   | 89.3 | 90.2 | 91.0 | 98.1 | 97.6 | 99.5 | 87.4         | 12.3 | 0.049 | 1.23 | 1.81 | 0.0210 | 0.932          |
| 3577   | 57.1   | 83.4 | 80.9 | 88.6 | 93.6 | 98.6 | 99.5 | 59.8         | 36.6 | 0.192 | 5.26 | 5.90 | 0.0718 | 0.907          |
| 3578   | 84.6   | 89.4 | 87.3 | 91.7 | 98.6 | 98.8 | 99.5 | 84.8         | 15.2 | 0.061 | 1.56 | 2.03 | 0.0234 | 0.936          |
| 3579   | 89.9   | 92.0 | 91.6 | 96.7 | 99.3 | 99.4 | 99.5 | 89.4         | 10.4 | 0.082 | 1.00 | 1.21 | 0.0252 | 0.949          |
| 3580   | 66.6   | 84.7 | 86.8 | 92.8 | 98.2 | 98.6 | 99.2 | 67.8         | 30.4 | 0.192 | 2.41 | 2.71 | 0.0399 | 0.97           |
| 3581   | 80.1   | 90.8 | 91.1 | 96.6 | 98.6 | 99.2 | 99.2 | 80.8         | 18.1 | 0.184 | 1.50 | 1.69 | 0.0399 | 0.967          |
| 3582   | 87.2   | 93.1 | 90.1 | 96.4 | 98.2 | 99.2 | 99.4 | 87.8         | 11.6 | 0.091 | 1.66 | 1.98 | 0.0404 | 0.896          |
| 3583   | 88.5   | 94.1 | 95.2 | 97.7 | 99.0 | 99.7 | 99.7 | 88.9         | 10.6 | 0.173 | 0.60 | 0.68 | 0.0261 | 0.984          |
| 3584   | 83.8   | 91.0 | 93.4 | 97.1 | 98.7 | 98.7 | 99.8 | 84.0         | 15.0 | 0.177 | 0.60 | 0.67 | 0.0185 | 0.992          |
| 3585   | 86.6   | 90.6 | 92.1 | 96.0 | 99.3 | 99.4 | 99.3 | 86.6         | 13.0 | 0.106 | 0.51 | 0.59 | 0.0122 | 0.992          |
| 3586   | 55.0   | 72.8 | 75.9 | 75.2 | 92.6 | 99.2 | 99.5 | 59.5         | 40.6 | 0.065 | 4.35 | 5.56 | 0.0252 | 0.932          |
| 3587   | 91.6   | 95.3 | 93.7 | 97.8 | 99.1 | 99.6 | 99.4 | 91.9         | 7.7  | 0.099 | 1.02 | 1.19 | 0.0396 | 0.912          |
| 3588   | 88.2   | 93.6 | 91.4 | 96.9 | 98.7 | 99.5 | 99.2 | 88.7         | 10.7 | 0.101 | 1.39 | 1.63 | 0.0391 | 0.916          |
| 3589   | 78.4   | 81.1 | 80.3 | 86.8 | 94.6 | 99.8 | 99.7 | 77.3         | 24.5 | 0.044 | 1.41 | 2.27 | 0.0121 | 0.975          |
| 3590   | 87.3   | 93.6 | 88.3 | 97.7 | 99.6 | 98.3 | 93.0 | 87.6         | 9.5  | 0.147 | 3.68 | 4.18 | 0.1556 | 0.565          |

Where no SE is presented, the model was constrained.