

**Supplementary Table S1.** Concentrations of alkanes of forage, feces and corn during gestation (mg/kg DM).

| Item | Sample | C ₂₅ | C ₂₇ | C ₂₉ | C ₃₁ | C ₃₂ | C ₃₃ | C ₃₅ |
|-----------------|----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Early gestation | <i>Stipa breviflora</i> Griseb | 76.92 | 334.44 | 1435.39 | 1471.47 | 0.00 | 245.13 | 10.57 |
| | <i>Peganum harmala</i> L | 8.92 | 18.64 | 0.00 | 22.25 | 0.00 | 2.49 | 0.00 |
| | <i>Oxytropis aciphylla</i> Ledeb | 17.47 | 28.09 | 32.14 | 67.71 | 0.00 | 3.75 | 0.00 |
| | Corn | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.43 | 0.00 |
| | Faecal sample 1 | 41.71 | 266.40 | 1176.14 | 1280.15 | 49.02 | 214.39 | 13.15 |
| | Faecal sample 2 | 47.06 | 320.49 | 1379.42 | 1434.64 | 113.94 | 299.58 | 19.27 |
| | Faecal sample 3 | 54.92 | 337.43 | 1421.70 | 1507.17 | 42.80 | 236.83 | 14.10 |
| | Faecal sample 4 | 47.09 | 307.64 | 1336.83 | 1492.47 | 64.49 | 245.41 | 16.74 |
| | Faecal sample 5 | 45.70 | 304.05 | 1270.30 | 1399.67 | 43.86 | 259.54 | 18.89 |
| | Faecal sample 6 | 50.33 | 316.94 | 1353.85 | 1479.41 | 43.41 | 276.04 | 16.44 |
| | Faecal sample 7 | 64.64 | 383.04 | 1624.26 | 1604.81 | 151.09 | 246.77 | 16.00 |
| | Faecal sample 8 | 66.90 | 373.81 | 1491.92 | 1376.10 | 55.17 | 232.52 | 17.76 |
| | <i>Stipa breviflora</i> Griseb | 65.31 | 254.89 | 550.08 | 942.82 | 17.97 | 163.83 | 9.08 |
| | <i>Peganum harmala</i> L | 10.82 | 18.54 | 58.86 | 11.65 | 0.00 | 0.00 | 0.00 |
| | <i>Oxytropis aciphylla</i> Ledeb | 23.24 | 21.72 | 85.00 | 40.43 | 0.00 | 4.02 | 0.00 |
| | Faecal sample 1 | 59.46 | 332.90 | 659.49 | 1094.62 | 131.08 | 192.54 | 15.54 |
| Late gestation | Faecal sample 2 | 36.03 | 197.92 | 444.98 | 831.84 | 99.02 | 150.88 | 12.31 |
| | Faecal sample 3 | 43.71 | 247.61 | 557.12 | 1064.26 | 102.19 | 193.07 | 13.94 |
| | Faecal sample 4 | 51.79 | 284.15 | 650.26 | 1265.07 | 116.06 | 235.81 | 15.32 |
| | Faecal sample 5 | 51.44 | 284.73 | 574.04 | 967.23 | 112.21 | 178.77 | 14.57 |
| | Faecal sample 6 | 52.30 | 317.31 | 611.73 | 976.55 | 96.78 | 164.02 | 14.78 |
| | Faecal sample 7 | 47.44 | 269.16 | 545.05 | 903.43 | 84.94 | 161.72 | 13.40 |
| | Faecal sample 8 | 52.73 | 287.19 | 606.87 | 1075.55 | 85.74 | 197.07 | 15.42 |

Supplementary Table S2. Forage nutrient levels during gestation (dry matter basis).

| Species | Stage | DM (%) | CP (%) | Ca (%) | P (%) | NDF (%) | ADF (%) | GE (MJ/kg) |
|----------------------------------|-----------------|--------|--------|--------|-------|---------|---------|------------|
| <i>Stipa breviflora</i> Griseb | early gestation | 96.10 | 6.17 | 0.55 | 0.07 | 59.68 | 39.01 | 18.93 |
| | late gestation | 97.18 | 4.46 | 0.36 | 0.03 | 66.30 | 53.71 | 19.53 |
| <i>Peganum harmala</i> L | early gestation | 95.52 | 11.71 | 3.71 | 0.10 | 31.75 | 27.59 | 15.69 |
| | late gestation | 96.93 | 10.92 | 2.09 | 0.06 | 36.46 | 32.33 | 15.76 |
| <i>Oxytropis aciphylla</i> Ledeb | early gestation | 96.01 | 8.14 | 2.43 | 0.06 | 49.16 | 42.37 | 17.37 |
| | late gestation | 97.03 | 1.81 | 0.11 | 0.09 | 57.14 | 50.91 | 17.48 |

Supplementary Table S3. Contents of mineral elements of eating grass during pregnancy (mg/kg DM).

| Species | Stage | Cu | Fe | Zn | Mn | K | Mg | Co | Se | S |
|----------------------------------|-----------------|------|---------|-------|-------|---------|---------|------|------|---------|
| <i>Stipa breviflora</i> Griseb | early gestation | 3.39 | 1001.91 | 12.67 | 57.77 | 1938.90 | 993.45 | 0.98 | 0.16 | 6.72 |
| | late gestation | 2.51 | 697.04 | 8.80 | 51.58 | 1160.84 | 834.49 | 0.63 | 0.16 | 1492.11 |
| <i>Oxytropis aciphylla</i> Ledeb | late gestation | 5.77 | 4158.87 | 20.67 | 20.37 | 3530.54 | 2537.97 | 2.14 | 0.35 | 1836.06 |