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Supplement of

Unambiguous evidence of old soil carbon in grass biosilica particles

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Supplement

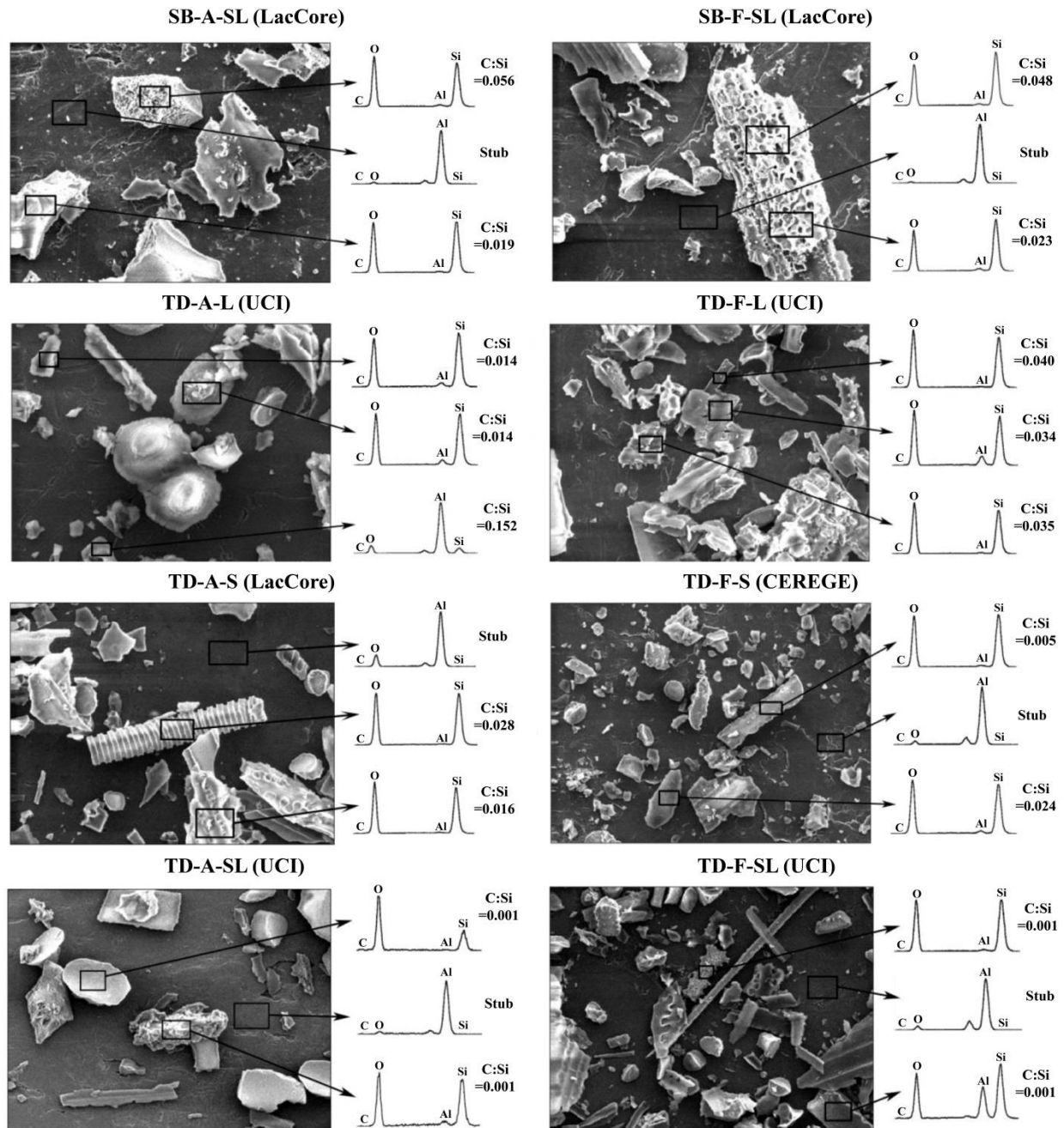


Fig. S1: Above ground C manipulation experiment. Examples of SEM images and EDS spectra of phytolith concentrates from sorghum and durum wheat experiments. The laboratory performing the extractions is shown in parenthesis. Although SEM-EDS data are semi-quantitative and somewhat inaccurate for C determinations alone, C:Si % mass ratios were distinct enough to allow detection of organic remains and silica particles. The C:Si values shown here are lower than 0.1, within the uncertainties obtained when measuring the SiC standard.

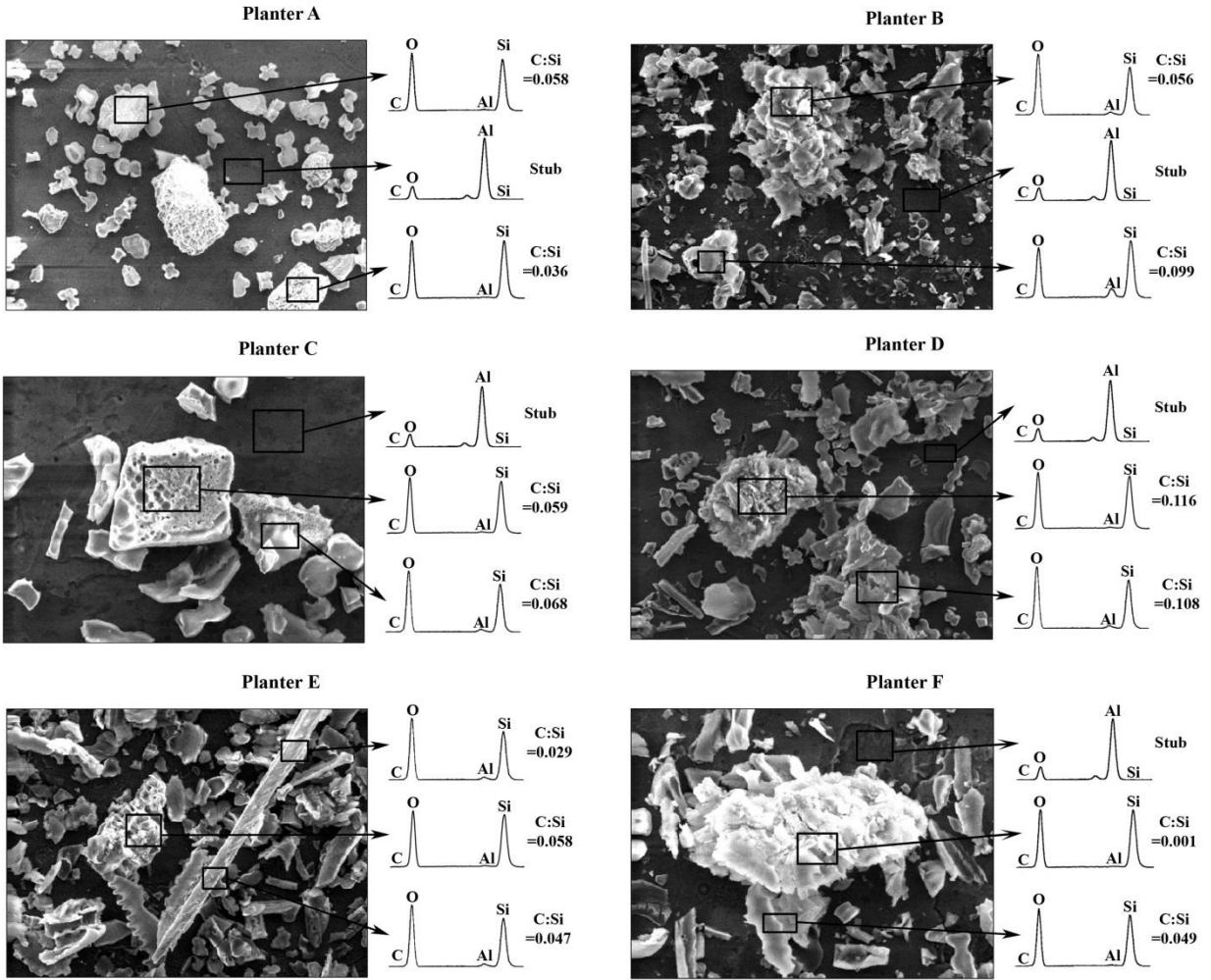


Fig. S2. Below-ground C manipulation experiment. Examples of SEM-EDS performed on phytolith concentrates from planters A-F. The C:Si values are indicative of an absence of organic residues in the concentrates and on the Al holder.

Table S1. Above-ground sorghum experiment. Complete ^{14}C and $\delta^{13}\text{C}$ results obtained for stems and leaves, phytoliths and SOM extracted fractions. Sample code is "species – ambient (A)/enriched (F) CO_2 – stem and leaves (SL) of origin". Phytolith extraction protocols are described in Figure 2 of the main text. (HCl), acid carbonate removal; (A/A/A), acid/alkaline/acid treatment - carbonate and labile SOM removal. Laboratories of extraction are presented in the main text.

| Series | Sample | Description | UCIAMS | Protocol | Lab. | Size (mgC) | Yield ^a (%C) | FmC | $\pm 1\sigma$ | ^{14}C age ^b (years BP) | $\pm 1\sigma$ | $\delta^{13}\text{C}$ -IRMS Av. \pm Stdev. (‰) | Yield Av. \pm Stdev. (‰) | FmC Av. \pm Stdev. (‰) | ^{14}C offset ^c (years) | Oldest SOM-C contribution |
|-------------------------------|-------------------------------|------------------------------|---------------|----------|---------|------------|-------------------------|--------|-----------------------|---|---------------------------|--|----------------------------|---------------------------|---|---------------------------|
| Ambient CO_2 | SB-A-SL | Stems and leaves | 53275 | NONE | UCI | 1.01 | 40.8 | 1.0962 | 0.0023 | -735 | 20 | -11.2 ± 0.1 (n=2) | 41.85 ± 1.485 (n=2) | 1.0969 ± 0.0010 (n=2) | | 0.00 |
| | | | 53276 | NONE | | 0.86 | 42.9 | 1.0976 | 0.0023 | -745 | 20 | | | | | |
| | | PhytC | 123579 | 1a | LacCore | 0.16 | 0.08 | 1.1108 | 0.0048 | -840 | 35 | -16.7 ± 0.5 (n=2) | 0.08 ± 0.000 (n=2) | 1.1087 ± 0.0295 (n=2) | -85 | -0.04 |
| | | | 123580 | 1a | | 0.13 | 0.08 | 1.1067 | 0.0059 | -810 | 45 | | | | | |
| | | | 95335 | 2b | CEREGE | 0.087 | 0.05 | 0.8291 | 0.0180 | 1510 | 180 | -21.6 ± 0.1 (n=2) | 0.05 ± 0.000 (n=3) | 0.8564 ± 0.0311 (n=3) | 1990 | 0.77 |
| | | | 95336 | 2b | | 0.052 | 0.05 | 0.8902 | 0.0348 | 930 | 320 | | | | | |
| | | | 95337 | 2b | | 0.034 | 0.05 | 0.8499 | 0.0539 | 1310 | 510 | | | | | |
| | 100753 | 2a (2X) | SSAL / CEREGE | 0.0043 | 0.01 | 0.8637 | 0.4654 | 1180 | 4330 | n.a. | 0.01 | n.a. | 1920 | 0.75 | | |
| | SB-A-SOIL | SOM Fraction (0-15cm) | 138214 | HCl | UCI | 0.760 | 0.60 | 1.0323 | 0.0027 | -250 | 25 | -20.8 ± 0.1 | 0.6 | n.a. | | |
| | | SOM Fraction (15-30cm) | 138215 | HCl | | 0.800 | 0.41 | 0.9884 | 0.0029 | 95 | 25 | -20.6 ± 0.1 | 0.41 | n.a. | | |
| | | SOM Fraction (30-45cm) | 138216 | HCl | | 0.810 | 0.35 | 0.9619 | 0.0026 | 310 | 25 | -20.0 ± 0.1 | 0.35 | n.a. | | |
| | | SOM Fraction (45-60cm) | 138217 | HCl | | 0.710 | 0.30 | 0.7849 | 0.0020 | 1945 | 25 | -18.2 ± 0.1 | 0.3 | n.a. | | 1.00 |
| | | Refractory Fraction (0-15cm) | 138220 | A/A/A | UCI | 0.780 | 0.70 | 1.0502 | 0.0026 | -390 | 20 | -22.7 ± 0.1 (n=2) | 0.53 ± 0.247 (n=2) | 1.0547 ± 0.0063 (n=2) | | |
| | | | 138222 | A/A/A | | 0.740 | 0.35 | 1.0591 | 0.0026 | -455 | 20 | | | | | |
| 138221 | | | A/A/A | 0.800 | | 0.60 | 0.9815 | 0.0024 | 150 | 20 | | | | | | |
| Refractory Fraction (30-60cm) | 138223 | A/A/A | 0.770 | 0.30 | 0.9803 | 0.0024 | 160 | 20 | -21.3 ± 0.9 (n=2) | 0.45 ± 0.212 (n=2) | 0.9809 ± 0.0008 (n=2) | | | | | |
| Enriched CO_2 | SB-F-SL | Stems and leaves | 53273 | NONE | UCI | 0.82 | 23.5 | 0.6399 | 0.0014 | 3585 | 20 | -9.7 ± 0.1 (n=2) | 23.30 ± 0.283 (n=2) | 0.6401 ± 0.0003 (n=2) | | 0.00 |
| | | | 53274 | NONE | | 0.73 | 23.1 | 0.6403 | 0.0014 | 3580 | 20 | | | | | |
| | | PhytC | 123577 | 1a | LacCore | 0.16 | 0.08 | 0.6975 | 0.0040 | 2895 | 50 | -16.6 ± 0.5 (n=2) | 0.08 ± 0.000 (n=2) | 0.6907 ± 0.0095 (n=2) | -610 | 0.18 |
| | | | 123578 | 1a | | 0.14 | 0.08 | 0.6840 | 0.0045 | 3050 | 60 | | | | | |
| | | | 95338 | 1b | CEREGE | 0.031 | 0.10 | 0.8884 | 0.0630 | 950 | 570 | n.a. | 0.1 | n.a. | -2633 | 0.88 |
| | SB-F-SOIL | SOM Fraction (0-15cm) | 114884 | HCl | UCI | 0.76 | 0.64 | 0.9776 | 0.0025 | 180 | 25 | -19.2 ± 0.1 | 0.64 | n.a. | | |
| | | SOM Fraction (15-30cm) | 114885 | HCl | | 0.63 | 0.23 | 1.0399 | 0.0028 | -310 | 25 | -21.1 ± 0.1 | 0.23 | n.a. | | |
| | | SOM Fraction (30-45cm) | 114886 | HCl | | 0.83 | 0.31 | 1.0544 | 0.0025 | -420 | 20 | -20.9 ± 0.1 | 0.31 | n.a. | | |
| | | SOM Fraction (45-60cm) | 114887 | HCl | | 0.57 | 0.22 | 0.9474 | 0.0023 | 435 | 20 | -19.0 ± 0.1 | 0.22 | n.a. | | |
| | | Refractory Fraction (0-15cm) | 114876 | A/A/A | UCI | 0.74 | 0.45 | 1.0477 | 0.0024 | -370 | 20 | -22.2 ± 1.4 (n=2) | 0.32 ± 0.184 (n=2) | 1.0462 ± 0.0022 (n=2) | | 1.44 |
| | | | 114878 | A/A/A | | 0.48 | 0.19 | 1.0446 | 0.0026 | -345 | 25 | | | | | |
| | | | 114877 | A/A/A | | 0.63 | 0.23 | 0.9378 | 0.0021 | 515 | 20 | | | | | |
| | Refractory Fraction (30-60cm) | 114879 | A/A/A | 0.23 | 0.09 | 0.9045 | 0.0022 | 805 | 20 | -19.8 ± 0.6 (n=2) | 0.16 ± 0.099 (n=2) | 0.9212 ± 0.0235 (n=2) | | 1.00 | | |

^a %C recoveries after lab protocol have been applied; ^b Negative ^{14}C ages are associated with material that fixed C during the post-nuclear testing period (e.g. Post-AD 1950 to present); ^c relatively to ^{14}C age of the bulk tissue.

Table S2. Above-ground durum wheat experiment. Complete ^{14}C and $\delta^{13}\text{C}$ results from stems and leaves, phytoliths and SOM fractions. Description (same as per Table S1).

| Series | Sample | Description | UCIAMS | Protocol | Lab. | Size (mgC) | Yield (%) | FmC | $\pm 1\sigma$ | ^{14}C age ^a (years BP) | $\pm 1\sigma$ | $\delta^{13}\text{C}$ -IRMS Av. \pm Stdev. (‰) | Yield Av. \pm Stdev. (‰) | FmC Av. \pm Stdev. (‰) | ^{14}C offset ^c (years) | Oldest SOM-C contribution | |
|------------------------|-----------|------------------------------|------------------------------|----------|---------|------------|-----------|--------|---------------|---|---------------|--|----------------------------|---------------------------|---|---------------------------|------|
| Ambient CO_2 | TD-A-L | Leaves | 108998 | NONE | UCI | 0.89 | 43.70 | 1.0174 | 0.0013 | -135 | 15 | -26.9 \pm 0.2 (n=16) | 43.70 | n.a. | | 0 | |
| | | PhytC | 115598 | 1a | CEREGE | 0.62 | 0.31 | 0.9788 | 0.0014 | 170 | 15 | -33.7 \pm 0.1 (n=4) | 0.24 \pm 0.090 (n=6) | 0.9767 \pm 0.0083 (n=6) | 324 | 0.15 | |
| | | | 115599 | 1a | | 0.65 | 0.32 | 0.9832 | 0.0014 | 135 | 15 | | | | | | |
| | | | 115600 | 1a | | 0.54 | 0.27 | 0.9846 | 0.0015 | 125 | 15 | | | | | | |
| | | | 123564 | 1a | | 0.28 | 0.14 | 0.9644 | 0.0024 | 290 | 25 | | | | | | |
| | | | 123565 | 1a | 0.28 | 0.14 | 0.9725 | 0.0032 | 225 | 30 | | | | | | | |
| | | | 123568 | 1a | UCI | 0.18 | 0.09 | 0.9923 | 0.0037 | 60 | 35 | -33.0 \pm 0.1 (n=2) | 0.08 \pm 0.021 (n=2) | 0.9873 \pm 0.0071 (n=2) | 238 | 0.11 | |
| | | | 123569 | 1a | | 0.19 | 0.06 | 0.9823 | 0.0036 | 145 | 30 | | | | | | |
| | | | 125984 | 2b | CEREGE | 0.008 | 0.004 | 0.8428 | 0.0261 | 1370 | 250 | | 0.004 | n.a. | 1505 | 0.64 | |
| | | 125986 | 2b | UCI | 0.005 | 0.002 | 0.7998 | 0.0463 | 1790 | 470 | | 0.002 | n.a. | 1925 | 0.8 | | |
| | TD-A-S | Stems | 108999 | NONE | UCI | 0.75 | 41.80 | 1.0222 | 0.0015 | -170 | 15 | -27.2 \pm 0.1 | | n.a. | | 0 | |
| | | PhytC | 123572 | 1a | UCI | 0.22 | 0.14 | 1.0089 | 0.0033 | -65 | 30 | -32.3 \pm 0.1 (n=2) | 0.14 | n.a. | 105 | 0.05 | |
| | | | 130336 | 1a | LacCore | 0.15 | 0.10 | 0.9904 | 0.0054 | 80 | 45 | -34.3 \pm 0.4 (n=2) | 0.10 \pm 0.007 (n=2) | 0.9944 \pm 0.0057 (n=2) | 215 | 0.1 | |
| | | | 130337 | 1a | | 0.17 | 0.09 | 0.9984 | 0.0049 | 10 | 40 | | | | | | |
| | | | 130340 | 2a | LacCore | 0.077 | 0.032 | 0.9574 | 0.0105 | 350 | 90 | n.a. | 0.032 | n.a. | 520 | 0.23 | |
| | | | 123575 | 1a | UCI | 0.10 | 0.05 | 0.9858 | 0.0079 | 110 | 70 | -33.0 \pm 0.1 (n=2) | 0.06 \pm 0.007 (n=2) | 0.9894 \pm 0.0052 (n=2) | 255 | 0.12 | |
| | | 123576 | 1a | 0.11 | | 0.06 | 0.9931 | 0.0064 | 60 | 60 | | | | | | | |
| | | TD-A-SOIL | SOM Fraction (0-15cm) | 130190 | HCl | UCI | 0.76 | 1.4 | 0.9107 | 0.0013 | 750 | 15 | -22.0 \pm 4.2 (n=2) | 1.45 \pm 0.071 (n=2) | 0.8505 \pm 0.0851 (n=2) | | |
| | | | 130193 | HCL | 0.72 | | 1.5 | 0.7903 | 0.0016 | 1890 | 20 | | | | | | |
| | | | Refractory Fraction (0-15cm) | 130206 | A/A/A | UCI | 0.76 | 1.1 | 0.8477 | 0.0012 | 1325 | 15 | -19.9 \pm 3.4 (n=2) | 1.20 \pm 0.141 (n=2) | 0.746 \pm 0.144 (n=2) | 1 | |
| 130200 | A/A/A | | | 0.79 | 1.3 | | 0.6444 | 0.0010 | 3530 | 15 | | | | | | | |
| Enriched CO_2 | TD-F-L | Leaves | 109000 | NONE | UCI | 0.81 | 48.4 | 0.5808 | 0.0008 | 4365 | 15 | -26.9 \pm 0.2 (n=16) | 48.4 | n.a. | | 0 | |
| | | PhytC | 115601 | 1a | CEREGE | 0.25 | 0.13 | 0.5647 | 0.0032 | 4590 | 50 | -31.6 \pm 0.1 (n=2) | 0.12 \pm 0.010 (n=4) | 0.5648 \pm 0.0002 (n=4) | 224 | 0.75 | |
| | | | 115602 | 1a | | 0.25 | 0.13 | 0.5651 | 0.0031 | 4585 | 45 | | | | | | |
| | | | 123562 | 1a | | 0.24 | 0.11 | 0.5647 | 0.0029 | 4590 | 45 | | | | | | |
| | | | 123563 | 1a | | 0.26 | 0.12 | 0.5646 | 0.0031 | 4590 | 45 | | | | | | |
| | | | 123566 | 1a | UCI | 0.20 | 0.09 | 0.5575 | 0.0034 | 4695 | 50 | -32.5 \pm 0.1 (n=2) | 0.09 \pm 0.00 (n=2) | 0.5590 \pm 0.0022 (n=2) | 308 | 1 | |
| | | | 123567 | 1a | | 0.19 | 0.09 | 0.5605 | 0.0035 | 4650 | 50 | | | | | | |
| | | | 125983 | 2b | CEREGE | 0.009 | 0.004 | 0.4057 | 0.0176 | 7250 | 350 | n.a. | 0.004 | n.a. | 2885 | 1 | |
| | | | 125985 | 2b | UCI | 0.007 | 0.003 | 0.5329 | 0.0237 | 5060 | 360 | n.a. | 0.003 | n.a. | 695 | 1 | |
| | | TD-F-S | Stems | 109001 | NONE | UCI | 0.80 | 43.5 | 0.5315 | 0.0007 | 5075 | 15 | -27.1 \pm 0.1 | | n.a. | | 0 |
| | PhytC | | 123570 | 1a | UCI | 0.11 | 0.09 | 0.5497 | 0.0059 | 4810 | 90 | -31.5 \pm 0.1 (n=2) | 0.08 \pm 0.021 (n=2) | 0.5526 \pm 0.0040 (n=2) | -310 | 0.76 | |
| | | | 123571 | 1a | | 0.090 | 0.06 | 0.5554 | 0.0074 | 4720 | 110 | | | | | | |
| | | | 130334 | 1a | LacCore | 0.18 | 0.10 | 0.5627 | 0.0027 | 4620 | 40 | -32.9 \pm 0.2 (n=2) | 0.10 \pm 0.000 (n=2) | 0.5599 \pm 0.0039 (n=2) | -415 | 1 | |
| | | | 130335 | 1a | | 0.13 | 0.100 | 0.5572 | 0.0039 | 4700 | 60 | | | | | | |
| | | | 130339 | 2a | LacCore | 0.060 | 0.03 | 0.5201 | 0.0081 | 5250 | 130 | n.a. | 0.03 | n.a. | 175 | 0 | |
| | TD-F-SL | | PhytC | 123573 | 1a | UCI | 0.14 | 0.07 | 0.5571 | 0.0072 | 4700 | 110 | -32.1 \pm 0.1 (n=2) | 0.06 \pm 0.021 (n=2) | 0.5504 \pm 0.0094 (n=2) | -280 | 0.68 |
| | | | 123574 | 1a | 0.063 | | 0.04 | 0.5438 | 0.0166 | 4890 | 250 | | | | | | |
| | TD-F-SOIL | SOM Fraction (0-15cm) | 130194 | HCl | UCI | 0.81 | 1.5 | 0.7329 | 0.0011 | 2495 | 15 | -18.2 \pm 2.4 (n=2) | 1.50 \pm 0.000 (n=2) | 0.6759 \pm 0.0807 (n=2) | | | |
| | | 130195 | HCL | 0.79 | | 1.5 | 0.6188 | 0.0009 | 3855 | 15 | | | | | | | |
| | | Refractory Fraction (0-15cm) | 130201 | A/A/A | UCI | 0.80 | 1.5 | 0.5983 | 0.0010 | 4125 | 15 | -16.0 \pm 1.9 (n=2) | 1.60 \pm 0.141 (n=2) | 0.5593 \pm 0.0551 (n=2) | 320 | 1 | |
| | | | 130202 | A/A/A | | 0.81 | 1.7 | 0.5204 | 0.0009 | 5245 | 15 | | | | | | |
| | Std. | MSG70 | PhytC | 100754 | Kelly's | CEREGE | 0.081 | 0.1 | 0.6962 | 0.0074 | 2910 | 90 | -30.4 \pm 0.1 (n=2) | 0.1 \pm 0.000 (n=2) | 0.6965 \pm 0.0004 (n=2) | | |
| | | | | 123581 | Kelly's | | 0.24 | 0.1 | 0.6968 | 0.0026 | 2900 | 35 | | | | | |

^a %C recoveries after lab protocol have been applied; ^b Negative ^{14}C ages are associated with material that fixed C during the post-nuclear testing period (e.g. Post-AD 1950 to present); ^c relatively to ^{14}C age of the bulk tissue; Kelly's - soil phytoliths extracted using a conventional protocol (Kelly et al. 1991) adapted to soil and sediment materials (see Crespin et al. 2008).

Table S3. Below-ground experiment. Complete ^{14}C and $\delta^{13}\text{C}$ results from seeds, stems and leaves, phytoliths, and amendments. Monthly integrated $^{14}\text{CO}_2$ of ambient-air (collected in 60 L cylinders) and efflux, plus efflux CO_2 concentrations are also shown.

| Sample | Description | UCIAMS | Protocol | Size (mg C) | Yield (%) | FmC | $\pm 1\sigma$ | ^{14}C age ^a (years BP) | $\pm 1\sigma$ | $\delta^{13}\text{C}$ (‰) | $\pm 1\sigma$ | ^{14}C offset ^c (years) | Oldest bulk amendment derived C contribution | |
|----------------------------------|----------------------------------|---------------------|---------------------------------------|--------------------------------------|------------------------------|--------------|---------------|---|---------------|---------------------------------|---------------|---|--|--|
| Single seed | Sorghum bicolor | 83120 | N/A | 1.04 | 41.8 | 1.0621 | 0.0025 | -480 | 20 | - | - | | | |
| | | 83121 | | 0.83 | 37.4 | 1.0667 | 0.0025 | -515 | 20 | - | - | | | |
| Ambient air | Period 5/31/11-7/7/11 | 119788 | CO ₂ purged from air (60L) | 0.85 | N/A | 1.0258 | 0.0016 | -200 | 15 | -8.9 | 0.1 | | | |
| | Period 5/9/12-6/6/12 (1) | 119791 | | 0.86 | N/A | 1.0217 | 0.0017 | -165 | 15 | - | - | | | |
| | Period 5/9/12-6/6/12 (2) | 119790 | | 0.85 | N/A | 1.0231 | 0.0021 | -180 | 20 | -9.1 | 0.1 | | | |
| | Period 7/24/12-8/21/12 | 119792 | | 0.86 | N/A | 1.0220 | 0.0021 | -170 | 20 | - | - | | | |
| | Period 8/4/11-9/21/11 | 119789 | | 0.83 | N/A | 1.0283 | 0.0018 | -220 | 15 | -8.7 | 0.1 | | | |
| | Same day collection - single | 83847 | | CO ₂ purged from air (1L) | 1.18 | N/A | 1.0334 | 0.0019 | -260 | 15 | -8.6 | 0.1 | | |
| | | 83846 | | | 0.84 | N/A | 1.0224 | 0.0019 | -175 | 15 | -9.4 | 0.1 | | |
| Planter A | Stems | 119796 | N/A | 0.75 | 43.2 | 1.0215 | 0.0017 | -165 | 15 | -13 | 0.1 | | | |
| | Leaves | 119795 | | 0.82 | 45.7 | 1.0258 | 0.0019 | -200 | 15 | -13 | 0.1 | | 0.00 | |
| | PhytC | 130348 | 1a-UCI | 0.11 | 0.08 | 1.0635 | 0.0078 | -480 | 60 | -18.7 | 0.1 | 320 | 0.64 | |
| | | 104361 | 2b-CEREGE | 0.051 | 0.03 | 1.0038 | 0.0274 | -20 | 220 | -15.3 | 0.1 | -140 | | |
| | | 104899 | 2b-CEREGE | 0.022 | 0.04 | 1.0109 | 0.0780 | -80 | 620 | - | - | -80 | | |
| | | 104365 | 2b(2X)-SSAL | 0.0081 | 0.01 | 0.9925 | 0.3419 | 60 | 2770 | - | - | -220 | | |
| | Miracle Gro® (MG) | 136938 | soil amendment | 0.82 | 49.5 (n=3) | 1.0849 | 0.0028 | -650 | 25 | -26.1 | 0.1 | | 1.00 | |
| | | 136939 | | 0.75 | | 1.0123 | 0.0028 | -95 | 25 | -25 | 0.1 | | | |
| | | 136940 | | 0.4 | | 1.0348 | 0.0030 | -270 | 25 | - | - | | | |
| | CO ₂ respired/chamber | 83842 | 1.72 ppm/sec ^b | 1.2 | N/A | 1.1089 | 0.0020 | -825 | 15 | -21.4 | 0.1 | | | |
| Planter B | Stems | 119798 | N/A | 0.85 | 43.3 | 1.0162 | 0.0019 | -125 | 15 | -12.7 | 0.1 | | | |
| | Leaves | 119797 | | 0.75 | 43 | 1.0223 | 0.0019 | -170 | 20 | -13 | 0.1 | | 0.00 | |
| | PhytC | 130345 | 1a-UCI | 0.12 | 0.1 | 0.9444 | 0.0066 | 460 | 60 | -19.1 | 0.1 | -620 | 0.09 | |
| | | 104360 | 2b-CEREGE | 0.022 | 0.02 | 0.8768 | 0.0629 | 1060 | 580 | -21.4 | 0.1 | -1220 | 0.17 | |
| | | 104366 | 2b(2X)-SSAL | 0.0078 | 0.01 | 0.6509 | 0.3065 | 3450 | 3790 | - | - | -3610 | 0.43 | |
| | Greensand (GS) | 60658; 59 | soil amendment | 0.22 | 0.06(OC ;n=4); 0.1 (bulk) | 0.1591 (n=2) | 0.0016 | 14765 | 78 | -24.3(OC; n=4); -12.6 (bulk) | 0.1 | | 1.00 | |
| | Ionic Grow (IG) | 58255; 74887 | | 0.04-0.60 | 0.8 | 0.0374 (n=2) | 0.0101 | 26550 | 2192 | -26.4 | 0.1 | | | |
| | CO ₂ respired/chamber | 83843 | 1.28 ppm/sec ^b | 1.2 | N/A | 0.8370 | 0.0015 | 1430 | 15 | -9.9 | 0.1 | | | |
| Planter C | Stems | 119800 | N/A | 0.8 | 42.7 | 1.0244 | 0.0016 | -190 | 15 | -12.5 | 0.1 | | | |
| | Leaves | 119799 | | 0.85 | 46.9 | 1.0228 | 0.0017 | -175 | 15 | -13 | 0.1 | | 0.00 | |
| | PhytC | 130346 | 1a-UCI | 0.11 | 0.1 | 1.0016 | 0.0073 | 0 | 60 | -20.4 | 0.1 | -160 | 0.02 | |
| | | 104362 | 2b-CEREGE | 0.027 | 0.02 | 0.8845 | 0.0499 | 990 | 460 | -17.5 | 0.1 | -1150 | 0.14 | |
| | | 104900 | 2b-CEREGE | 0.012 | 0.02 | 0.8196 | 0.1540 | 1600 | 1510 | - | - | -1760 | 0.21 | |
| | Ionic Grow (IG) | 58255; 74887 | soil amendment | 0.04-0.60 | 0.8 | 0.0374 (n=2) | 0.0101 | 26550 | 2192 | -26.4 | 0.1 | | 1.00 | |
| CO ₂ respired/chamber | - | - | - | - | - | - | - | - | - | - | - | - | | |
| Planter D | Stems | 119802 | N/A | 0.83 | 42.3 | 1.0174 | 0.0016 | -135 | 15 | -12.5 | 0.1 | | | |
| | Leaves | 119801 | | 0.84 | 43.1 | 1.0208 | 0.0018 | -160 | 15 | -13 | 0.1 | | 0.00 | |
| | PhytC | 130347 | 1a-UCI | 0.13 | 0.1 | 1.0002 | 0.0070 | 0 | 60 | -20 | 0.1 | -160 | 0.04 | |
| | Earth juice (EJ) | 58253;54 & 60660 | soil amendment | 0.06-0.89 | 15.4 (n=2) | 0.4991 (n=3) | 0.0013 | 5583 | 24 | -24.1 (n=2) | 0.2 | | 1.00 | |
| | CO ₂ respired/chamber | 83844 | 0.45 ppm/sec ^b | 0.94 | N/A | 0.9805 | 0.0019 | 160 | 20 | -9.4 | 0.1 | | | |
| Planter E | Stems | 119804 | N/A | 0.82 | 41.4 | 1.020 | 0.0017 | -150 | 15 | -12.6 | 0.1 | | | |
| | Leaves | 119803 | | 0.81 | 46.1 | 1.021 | 0.0018 | -160 | 15 | -13.6 | 0.1 | | 0.00 | |
| | PhytC | 130344 | 1a-UCI | 0.1 | 0.1 | 0.9371 | 0.0075 | 520 | 70 | -17.6 | 0.1 | -680 | 0.08 | |
| | Fossil Fuel (FF) | 136937; 153690 & 91 | soil amendment | 0.7 - 0.9 | 33.04(n=3) | 0.0055 (n=3) | 0.0003 | 43340 | 1700 | -26.2 (n=2) | 0.2 | | 1.00 | |
| | CO ₂ respired/chamber | 83845 | 0.34 ppm/sec ^b | 1.04 | N/A | 1.0048 | 0.0022 | -35 | 20 | -11 | 0.1 | | | |
| Planter F (control) | Stems | 119794 | N/A | 0.72 | 44.2 | 1.023 | 0.0019 | -180 | 20 | -12.7 | 0.1 | | | |
| | Leaves | 119793 | | 0.83 | 41.2 | 1.015 | 0.0019 | -115 | 20 | -13.3 | 0.1 | | | |
| | PhytC | 130343 | 1a-UCI | 0.13 | 0.1 | 1.0074 | 0.0065 | -50 | 60 | -20.8 | 0.1 | -110 | N/A | |

^a ^{14}C recoveries after lab protocol have been applied; ^b Negative ^{14}C ages are associated with material that fixed C during the post-nuclear testing period (e.g. Post-AD 1950 to present); ^c Relatively to the average ^{14}C age of the bulk plant tissue (all planters); ^d CO_2 efflux of substrates - measured from closed chambers (cf txt).