



Figure S1: Digestion of wheat plants and soil at Analisi Control Srl Laboratory

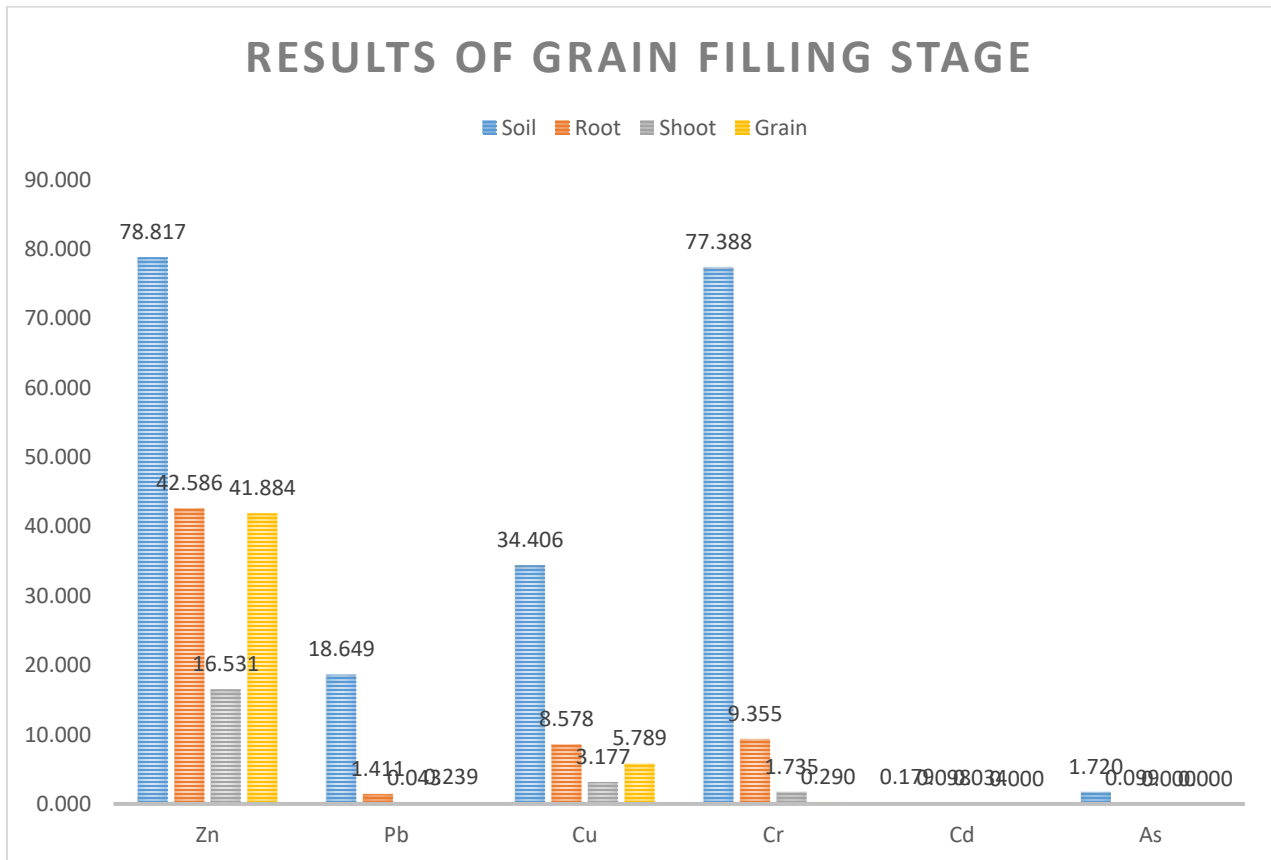


Figure S2: Sum of heavy metals in soil, root, shoot, and grain of Saragolla, Fuego, and Evoldur durum wheat at Grain filling stage.

Table S1: Operation parameters for EDX X-ray fluorescence instrument.

X-ray Generator		Vacuum Unit	
X-ray tube	Rh target	Evacuation	Oil rotary vacuum pump, directly connected
Voltage	5 kV to 50 kV	Vacuum monitor	Pirani gauge
Current	1 μ A to 1000 μ A	Atmospheric-pressure monitor	With pressure sensor
Cooling method	Air cooling (with fan)	Detector	
Irradiated area	Automatic switching in four stages: 1, 3, 5, and 10 mm diameter	Type	Si (Li) semiconductor detector
Primary filter	Five types (six, including the open position), automatic replacement	LN ₂ supply	Only during measurement
Sample Chamber		LN ₂ Dewar capacity	3 L
Atmosphere	Air, vacuum	LN ₂ consumption	Approx. 1L/day
Sample exchange	8-sample turret		
Sample observation	CCD camera		

Table S2: *Heavy metals in soil (Tillering stage).*

Metals	Soil1_ 1	Soil1_ 2	Soil2_ 1	Soil3_ 1	Soil3_ 2	Soil4_ 1	Soil4_ 2	Soil5_ 2	Soil6_ 2	Soil7_ 2
	M ± SD									
Cr	89.81 1±	71.667 ±	90.306 ±	92.823 ±	74.681 ±	96.174 ±	66.548 ±	71.241 ±	62.992 ±	85.659 ±
	0.739	0.331	0.408	0.212	0.487	0.513	0.206	0.342	0.626	0.300
Cd	.227±	.189±	.204±	.170±	.213±	.227±	.238±	.213±	.227±	.208±
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cu	43.93 9±	26.918 ±	37.211 ±	35.238 ±	37.269 ±	46.515 ±	36.230 ±	36.560 ±	32.689 ±	33.403 ±
	0.065	0.238	0.328	0.328	0.222	2.496	0.451	0.162	0.263	0.335
Pb	21.06 0±	13.616 ±	20.714 ±	23.809 ±	19.539 ±	22.045 ±	17.976 ±	18.050 ±	16.439 ±	20.035 ±
	0.131	0.054	0.177	0.058	0.162	0.114	0.119	0.061	0.174	0.159
Zn	91.93 2±	68.711 ±	87.483 ±	96.565 ±	79.255 ±	96.174 ±	74.841 ±	77.160 ±	69.584 ±	89.375 ±
	0.682	0.144	0.412	0.118	0.383	0.174	0.182	0.221	0.328	0.361
As	3.144±	2.484±	2.959±	3.265±	2.801±	3.106±	2.465±	2.482±	2.348±	2.917±
	0.430	0.054	0.177	0.204	0.325	0.262	0.411	0.403	0.403	0.276

(M ± SD) Mean ± Standard deviation

Table S3: Heavy metals in soil (Jointing stage).

Metals	Soil1_ 1	Soil1_ 2	Soil2_ 1	Soil3_ 1	Soil3_ 2	Soil4_ 1	Soil4_ 2	Soil5_ 2	Soil6_ 2	Soil7_ 2
	M ± SD									
Cr	83.00 6±	62.981 ±	74.808 ±	89.412 ±	93.163 ±	86.572 ±	68.537 ±	66.905 ±	70.034 ±	86.967 ±
	0.315	0.225	0.096	0.490	0.204	0.055	0.156	0.312	0.118	0.404
Cu	44.80 4±	33.301 ±	37.244 ±	34.869 ±	40.476 ±	40.629 ±	37.211 ±	37.211 ±	36.463 ±	33.300 ±
	0.098	0.200	0.111	0.150	0.589	0.109	0.118	0.156	0.236	0.100
Cd	0.294±	0.288±	0.192±	0.196±	0.306±	0.220±	0.306±	0.306±	0.306±	0.233±
	0.000	0.000	0.000	0.000	0.000	0.054	0.000	0.000	0.000	0.058
Pb	21.07 8±	17.276 ±	18.654 ±	22.222 ±	23.163 ±	20.126 ±	19.864 ±	18.980 ±	18.673 ±	20.733 ±
	0.098	0.147	0.096	0.113	0.270	0.109	0.118	0.102	0.177	0.058
Zn	88.82 4±	69.135 ±	75.737 ±	92.876 ±	94.830 ±	90.503 ±	76.020 ±	76.190 ±	75.884 ±	90.967 ±
	0.260	0.193	0.055	0.396	0.294	0.109	0.177	0.156	0.312	0.379
As	2.353±	1.955±	1.827±	3.366±	2.721±	3.208±	2.551±	2.891±	2.721±	3.067±
	0.196	0.147	0.419	0.315	0.212	0.378	0.270	0.294	0.118	0.416

(M ± SD) Mean ± Standard deviation

Table S4: *Heavy metals in shoot (Tillering stage).*

Metals	Shoot1_1	Shoot1_2	Shoot2_1	Shoot3_1	Shoot3_2	Shoot4_1	Shoot4_2	Shoot5_2	Shoot6_2	Shoot7_2
Cr	1.373±	1.406±	3.167±	2.305±	3.227±	1.708±	2.826±	1.500±	2.955±	.992±
	0.000	0.000	0.000	0.061	0.062	0.072	0.000	0.000	0.000	0.069
Cd	.196±	.156±	.000±	.106±	.141±	.125±	.109±	.250±	.227±	.119±
	0.000	0.000	0.000	0.000	0.062	0.000	0.000	0.000	0.000	0.000
Cu	6.471±	7.240±	5.833±	5.780±	9.362±	7.792±	6.630±	8.875±	15.606±	8.730±
	0.000	0.000	0.000	0.061	0.000	0.072	0.000	0.125	0.131	0.069
Pb	.327±	.260±	.611±	.390±	.390±	.208±	.145±	.250±	.682±	.317±
	0.057	0.090	0.096	0.123	0.062	0.072	0.062	0.000	0.000	0.069
Zn	29.804±	30.729±	31.667±	28.759±	40.319±	31.000±	28.370±	42.875±	71.363±	31.160±
	0.000	0.090	0.167	0.062	0.107	0.125	0.109	0.000	0.394	0.052

(M ± SD) Mean ± Standard deviation

Table S5: Heavy metals in shoot (Jointing stage).

Metals	Shoot 1_1	Shoot 1_2	Shoot 2_1	Shoot 3_1	Shoot 3_2	Shoot 4_1	Shoot 4_2	Shoot 5_2	Shoot 6_2	Shoot 7_2
Cd	0.033±	0.065±	0.000±	0.069±	0.067±	0.067±	0.000±	0.098±	0.000±	0.000±
	0.058	0.057	0.000	0.060	0.058	0.058	0.000	0.000	0.000	0.000
Cr	1.000±	0.490±	1.156±	0.973±	0.400±	1.433±	1.373±	1.765±	2.115±	1.000±
	0.000	0.000	0.059	0.060	0.000	0.058	0.000	0.000	0.000	0.000
Cu	3.833 ±	3.235 ±	3.878 ±	3.229 ±	3.933 ±	4.633 ±	4.412 ±	3.857 ±	4.231 ±	3.467 ±
	0.058	0.000	0.000	0.000	0.058	0.058	0.000	0.057	0.000	0.058
Pb	0.067±	0.098±	0.136±	0.104±	0.033±	0.100±	0.163±	0.000±	0.096±	0.100±
	0.058	0.000	0.059	0.000	0.115	0.100	0.057	0.000	0.096	0.100
Zn	18.167±	22.059±	19.626±	15.590±	21.933±	21.800±	15.621±	22.124±	21.090±	20.600±
	0.058	0.098	0.059	0.060	0.058	0.100	0.057	0.150	0.055	0.100

(M ± SD) Mean ± Standard deviation

Table S6: *Heavy metals in root (Tillering stage).*

Metals	Root1_1	Root1_2	Root2_1	Root3_1	Root3_2	Root4_1	Root4_2	Root5_2	Root6_2	Root7_2
Cr	6.500±	26.667±	26.818±	5.750±	12.222±	9.462±	5.167±	8.917±	9.321±	16.919±
	0.000	0.262	0.000	0.000	0.000	0.093	0.000	0.144	0.107	0.088
Cd	.000±	.455±	.455±	.000±	.278±	.161±	.000±	.250±	.185±	.202±
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.087
Cu	9.000±	44.242±	27.273±	5.583±	15.833±	19.893±	7.056±	14.333±	13.395±	16.566±
	0.00	0.262	0.000	0.144	0.000	0.093	0.096	0.144	0.107	0.088
Pb	1.333±	6.212±	5.606±	1.000±	2.129±	1.667±	1.000±	1.917±	2.099±	3.182±
	0.144	0.263	0.262	0.000	0.161	0.093	0.000	0.144	0.107	0.152
Zn	68.833±	188.485±	156.667±	39.000±	64.629±	75.215±	33.222±	78.500±	68.457±	68.232±
	0.289	0.946	0.694	0.433	0.321	0.336	0.096	0.500	0.428	0.175

(M ± SD) Mean ± Standard deviation

Table S7: Heavy metals in root (Jointing stage).

Metals	Root1_ 1	Root1_ 2	Root2_ 1	Root3_ 1	Root3_ 2	Root4_ 1	Root4_ 2	Root5_ 2	Root6_ 2	Root7_ 2
Cd	0.098±	0.196±	0.100±	0.102±	0.204±	0.096±	0.098±	0.136±	0.098±	0.131±
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.059	0.000	0.057
Cr	15.294 ±	13.072±	10.000±	24.490±	23.401±	7.981±	5.621±	5.918±	5.980±	7.974±
	0.098	0.057	0.100	0.102	0.118	0.000	0.057	0.000	0.000	0.057
Cu	14.673 ±	10.980±	9.933±	15.034±	15.000±	10.320±	8.660±	8.027±	13.300±	9.216±
	0.057	0.000	0.058	0.059	0.000	0.056	0.057	0.059	0.057	0.000
Pb	2.941±	3.300±	1.900±	4.490±	4.524±	1.282±	1.013±	1.088±	1.045±	1.308±
	0.000	0.057	0.000	0.102	0.118	0.055	0.057	0.059	0.057	0.057
Zn	49.412 ±	65.523±	33.767±	58.061±	65.918±	52.660±	43.922±	44.422±	50.980±	39.641±
	0.098	0.150	0.153	0.177	0.270	0.111	0.098	0.059	0.098	0.113

(M ± SD) Mean ± Standard deviation